The New England
Journal of Medicine

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VOLUME 226 JUNE 25, 1942 NUMBER 26

THE TREATMENT OF PERNICIOUS ANEMIA: A NINE-YEAR STUDY OF MAINTENANCE REQUIREMENTS, WITH A NOTE ON THE EFFICACY OF PURIFIED LIVER EXTRACTS IN THE CONTROL OF NEURAL LESIONS*

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IT has been well established that the patient with Addisonian pernicious anemia may be maintained in complete remission with "adequate" liver extract administered parenterally. Furthermore, it is well known that such treatment must be continued throughout the remainder of the patient's life. What constitutes "adequate" therapy, however, is not well established. Although probably over 90 per cent of patients with pernicious anemia may be maintained satisfactorily if they receive a minimum of 1 *U.S.P.* unit of liver extract daily, generally administered as 15 units every fortnight or 30 units monthly, there is a question whether this amount is in excess of the requirements of most patients. Intervals longer than one month between injections are considered inadvisable for most patients, since it has been shown that relapse may occur as soon as eight to twelve weeks after the injection of even massive doses of liver extract.[1, 2] Whether benefit derives from shorter intervals than one month between injections is not known.

In an endeavor to clarify these problems, an analysis has been made of the blood levels of 80 patients with pernicious anemia who received liver extract in varying amounts and at varying intervals during a period extending from five to nine years. The minimum length of any one mode of treatment was one year, and no patient has been included in this study who was not treated for at least five years. During the first part of this study, the liver extract originally described by Strauss, Taylor and Castle[3] was employed in uniform dosage of 10 cc. per injection,¶ at intervals of one to four weeks. The average red-cell counts for patients receiving injections at intervals of one, two, three and four weeks were 4,780,000, 4,720,000, 4,850,000 and 4,750,000, and the hemoglobin levels were 91, 92, 94 and 91 per cent respectively (100 per cent being equivalent to 15.6 gm. per 100 cc.). To facilitate comparison, the patients were divided into six groups, each group consisting of patients who received injections at different intervals (Table 1). It is apparent that varying the interval between injections

TABLE 1. *Effect of Varying the Time Interval between Injections of Liver Extract.*

No. of Patients	Amount of Liver Extract¶ Given at Each Injection	Interval between Injections	Average Capillary Red-Cell Count	Average Capillary Hemoglobin
	cc.	*weeks*	$\times 10^6$	%
24	10	1	4.8	91
	10	2	4.8	95
18	10	1	4.8	92
	10	3	5.0	98
14	10	1	4.7	92
	10	4	4.7	94
49	10	2	4.7	93
	10	3	4.9	95
47	10	2	4.7	93
	10	4	4.8	93
48	10	3	4.9	95
	10	4	4.7	93

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¶We judge from our observations that 1 cc. of this material has the approximate hematopoietic effect of 1 *U.S.P.* unit of Solution Liver Extract Crude, Lilly. Eli Lilly and Company, of Indianapolis, Indiana, kindly supplied this material.

from one to four weeks was without effect on either the red-cell count or the hemoglobin level.

In 1938, three changes were made: a uniform interval of four weeks between injections was adopted for all patients; a shift was made from the relatively dilute type of liver extract previously employed to Solution Liver Extract Purified, Lilly, containing 15 *U.S.P.* units to each cubic centimeter; and blood for examination, formerly obtained by puncture of the ear lobe, was removed by venipuncture without stasis. It has been pointed out that, in pernicious anemia at least, venous blood contains approximately 5 per cent less hemoglobin and 250,000 fewer erythrocytes per cubic millimeter than capillary blood.[4] The amount of extract given at each injection was 10, 15, 20 or 30 units. The average red-cell counts maintained with each of these doses were 4,540,000, 4,470,000, 4,470,000 and 4,520,000, and the hemoglobin levels were 85, 87, 87 and 88 per cent respectively. At the end of 1939, the amount of extract received by 45 of the patients was increased by 50 per cent. Table 2 shows the absence of effect of this procedure on the red-cell count and hemoglobin level.

TABLE 2. *Effect of Increasing the Amount of Liver Extract Given at Each Injection.*

No. of Patients	Amount of Liver Extract Given at Each Injection	Interval between Injections	Average Venous Red-Cell Count	Average Venous Hemoglobin
	U.S.P. *units*	*weeks*	$\times 10^6$	%
25	10	4	4.5	85
	15	4	4.5	87
20	20	4	4.5	87
	30	4	4.5	88

In the first part of these observations, no case of blood relapse occurred with the increased interval between injections, and in the second part there was no statistically significant improvement in any patient's blood values with the 50 per cent increase in dose.

Additional evidence of the adequacy of the treatment employed is to be found in the facts that no patient with subacute combined degeneration of the spinal cord suffered a neural relapse and that no patient without spinal-cord manifestations developed neural lesions during the period of observation.[5]

It may also be stated that the concentrated liver extract employed during the last three years has been as effective in controlling the neural lesions as the less purified extracts previously used.[6]

When injections of 10 cc. of crude extract or 10 *U.S.P.* units of purified extract were given at intervals of three or four weeks, certain patients complained of feeling less well during the third or fourth week after the injection, and during the period immediately preceding the next injection, and a few actually had some subjective manifestations of glossitis that were abolished after the injection.

Since this study was completed, we have adopted a uniform maintenance dose of 15 *U.S.P.* units of purified liver extract every four weeks for all clinic patients. In the period of eighteen months in which this regimen has been in effect, we have encountered no relapses in the blood, gastrointestinal or nervous systems, either objective or subjective.

Discussion

There seems to be little doubt that individual maintenance requirements for liver extract vary widely in patients with Addisonian pernicious anemia. The determination of the requirement is a difficult task often necessitating years of observation. It is not, in general, a feasible procedure in the routine handling of a patient with pernicious anemia. It has repeatedly been stated that one of the criteria of adequate treatment is the maintenance of normal red-cell values. This is, of course, quite correct, although often difficult to apply in actual practice for several reasons. One of these is that although the *average normal* red-cell count is in the neighborhood of 4,500,000 to 5,000,000, there are rare persons whose *normal* values are persistently under 4,000,000 and others whose normal values are over 6,000,000. A second difficulty, only recently appreciated,[7] is the fact that a single red-cell count performed with satisfactory technic in the usual manner at an approximate level of 5,000,000 is significant only within a range of 1,600,000. In fact, a difference of over 1,000,000 may be expected to occur once in every twenty pairs of consecutive red-cell counts. The performance of duplicate determinations on each observation only increases the range of significance to 1,100,000 and quadruplicate counts to 800,000. A mean of twenty counts is significant within a range of 340,000, but this is hardly a practical procedure. Price-Jones curves, admittedly the most accurate determination of red-cell normality, are too laborious for routine use. Estimation of the mean corpuscular volume, depending as it does on the red-cell count and hematocrit determination, appears to be subject to even wider variation than the red-cell count alone.

In view of these difficulties, we have set up the following procedure in our clinic for determining adequacy of treatment:

> If the red-cell count is persistently under 4,000,000, greatly augmented doses of liver extract are employed at short intervals — such as 30 to

75 *U.S.P.* units weekly for two or three months; if this results in consistently higher blood values, one concludes that the previous therapy was inadequate.

If glossitis occurs, the treatment is considered inadequate, irrespective of high red-cell levels.

If neural lesions progress unfavorably, the treatment is considered inadequate, irrespective of red-cell counts.

If the patient lacks what he considers a satisfactory sense of well-being on any given amount of treatment and regains a feeling of better health when, unknown to him, he is receiving a larger amount of extract, the original treatment is regarded as inadequate.

Summary

Eighty patients with Addisonian pernicious anemia were studied for from five to nine years while under treatment with liver extract parenterally administered.

In these 80 patients, no difference in blood levels was detected when the time interval between injections of the same amount of dilute liver extract varied from one to four weeks. Seventy-five patients subsequently received concentrated liver extract by injection. No difference in blood levels was noted as a result of this change, and there was no case of neural relapse.

No difference in blood levels between patients receiving a minimum of 10 *U.S.P.* units every four weeks and those receiving larger amounts was detected. It is nevertheless probable that certain patients require more liver extract than this amount, particularly in the presence of infection or severe damage to vital organs.

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PNEUMOCOCCAL MENINGITIS*

A Study of Seventy-Two Cases

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BEFORE the use of the modern specific therapeutic agents, pneumococcal meningitis was almost invariably fatal. With the advent of specific serum and particularly since sulfanilamide and its derivatives have become available, a number of cases have been reported in which a relatively large proportion of patients recovered. Steele and Gottlieb,[1] reviewing the 115 sulfonamide-treated cases reported in the literature through June, 1940, found that recovery occurred in 60 per cent. Since June, 1940, two equally favorable reports have appeared. Rhoads and his associates[2] reported a recovery rate of 32 per cent among 22 patients treated with sulfapyridine and specific serum; Neal and her coworkers[3] presented a series of 30 patients treated with sulfapyridine, of whom 10 (33 per cent) recovered.

To determine exactly how the recovery rate from this disease has been influenced by the newer therapeutic agents, we have studied all the cases of pneumococcal meningitis occurring in the District of Columbia from January 1, 1938, to October 31, 1941. It was hoped that by this method all selection of cases would be eliminated and a true picture of the mortality rate and the factors governing it could be obtained. Data on 72 cases of meningitis identified as caused by the pneumococcus were obtained from hospital and health-department records. This group includes all the cases recognized in the District of Columbia during the period mentioned. The occurrence of the cases by years is shown in Table 1. Fifty-one, or 71 per cent of all the cases, occurred during the late fall and winter months, November to March, inclusive. This seasonal distribution is

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quite similar to that of pneumococcal pneumonia.

The age, sex and race of the 72 patients are shown in Table 2. The largest percentage of cases occurred in children under one year of age (31 per cent) and the next largest in adults over the age of sixty years (15 per cent). Three of the 4 patients who recovered were young adults (twenty-four, twenty-eight and thirty years of age),

TABLE 1. *Occurrence of Cases of Pneumococcal Meningitis by Years in the District of Columbia.*

YEAR	NO. OF CASES	NO. OF RECOVERIES	FATALITY
			%
1938	18	0	100
1939	16	2	88
1940	19	1	95
1941 (10 months)	19	1	95
Totals	72	4	
Average			94

and the fourth was an infant three months old. The ratio of male to female cases was 1.6:1.0.

The pneumococci most frequently encountered (Table 3) were Types 3 (14 cases), 5 (6 cases) and

TABLE 2. *Age, Sex and Race in Cases of Pneumococcal Meningitis.*

AGE	MALE WHITE	MALE COLORED	FEMALE WHITE	FEMALE COLORED	TOTAL NO. OF CASES	TOTAL NO. OF RECOVERIES
yr.						
Under 1	6	6	3	7	22	1*
1–10	5	1	1	3	10	0
11–20	0	1	1	0	2	0
21–30	3	2	0	2	7	3*
31–40	0	1	0	1	2	0
41–50	4	3	2	0	9	0
51–60	5	0	2	2	9	0
61 and over	6	1	2	2	11	0
Totals	29	15	11	17	72	4

*All colored patients.

14 (6 cases). Two of the first type were found in patients under two years of age, and the remaining patients were fifteen years or older. Both cases of Type 6, which is commonly encountered in children, occurred in children under two years of age. Type 16, another type found in children, was recovered from 3 infants under one year and from 3 adults. The type of pneumococcus was not determined in 9 of the 72 cases.

As shown in Table 4, a history of middle-ear infection and pneumonia during or immediately preceding the development of meningitis was found in a large proportion (58 per cent) of the cases. A history of milder respiratory infections was found in an additional 21 per cent. The occurrence of otitis media was found as frequently among adults as among children.

Sixty-seven of the 72 patients received one or more of the sulfonamide drugs or specific serum, or both. In 5 cases, the meningitis appeared to develop while active treatment for pneumonia with a sulfonamide was in progress. Five patients received no serum or chemotherapy either because they died before treatment could be started or because the meningitis was not immediately recognized.

To determine whether or not therapy was adequate in each of the 67 cases, the treatment was classified as "good," "fair" or "poor." "Good" treatment with one of the sulfonamides was considered to mean: that the initial dose was 4 to 6 gm., followed by 1 gm. every four hours, in adults,

TABLE 3. *Types of Pneumococci Found on Examination of Spinal Fluid in Cases of Pneumococcal Meningitis.*

TYPE	NO. OF CASES
1	1
2	3
3	14
4	4
5	6
6	2
7	4
8	4
10	3
12	4*
14	6*
16	1†
17	1
18	5
19	3
23	1
Carver	1†
Not typed	9
Total	72

*One recovery.
†Recovery.

with comparable doses for children; that the concentration of the drug in the blood and cerebrospinal fluid was kept at high levels; and that no lapses in the drug therapy occurred from the time the meningitis was first treated until death or

TABLE 4. *History of Infections and Injuries Preceding Onset of Pneumococcal Meningitis.*

INFECTION OR INJURY	NO. OF CASES	PER CENT	NO. OF RECOVERIES
Otitis media, mastoiditis	21	29	1
Pneumonia	18	25	0
Pneumonia (questionable)	3	4	1
Otitis media and pneumonia	2	3	0
Other respiratory infections*	15	21	0
Fracture of skull	3	4	0
None	10	14	2
Totals	72		4

*Includes common cold, influenza and sinusitis.

recovery ensued. "Good" treatment with specific serum was considered to mean the administration of large doses of serum by the intravenous route, with or without additional serum intrathecally and intramuscularly, begun as soon as the meningitis was recognized and repeated at frequent intervals as long as the condition of the patient

required it. The treatment in cases not meeting the above standards completely was classified as "fair," and that in cases in which these conditions were fulfilled only slightly was considered "poor."

As indicated in Table 5, 39, or 54 per cent, of the patients received what might be regarded as good treatment, 19, or 26 per cent, had fair treatment, and 9, or 13 per cent, were poorly treated. Of the 17 patients who received good treatment with Gottlieb can easily be determined from a study of their article. Thirty of the cases in their review were published as individual case reports, and among these, 27 patients recovered. Furthermore, among the 18 cases reported in groups of two or three, there were 12 recoveries. From these figures, it is obvious that cures from this disease have heretofore been so infrequent as to lead authors to publish isolated recovered cases, whereas the

TABLE 5. *Quality of Treatment Administered and Its Results in Cases of Pneumococcal Meningitis.*

Quality of Treatment	Serum Alone		Drug Alone		Serum and Drug		Total		Average Survival in Fatal Cases
	No. of cases	No. of recoveries	No. of cases	No. of recoveries	No. of cases	No. of recoveries	No. of cases	No. of recoveries	
									days
Good	0	–	17	1	22	3	39	4	7.5
Fair	0	–	14	0	5	0	19	0	2.6
Poor	3	0	3	0	3	0	9	0	2.1
None	–	–	–	–	–	–	5	0	1.2

drugs alone, 5 received sulfanilamide, 9 had sulfapyridine (1 of whom recovered), and 3 had both drugs. Of those receiving good treatment with drugs and serum, 2 had sulfanilamide and serum, 14 had sulfapyridine and serum (2 of whom recovered), 3 had sulfanilamide, sulfapyridine and serum (1 of whom recovered after receiving large doses of sulfapyridine by mouth, together with a small dose of sulfanilamide subcutaneously), 3 had sulfathiazole with sodium sulfapyridine and serum, 1 had sulfadiazine and serum, and 1 had sulfathiazole, sulfanilamide and serum. None of the patients survived who received treatment classified as fair or poor.

One effect of therapy that has been neglected in the study of infectious diseases having a high mortality rate is the survival in patients who eventually succumb to the disease. This aspect has been considered in the last column of Table 5. Patients who received good treatment lived for an average of 7.5 days from the time meningitis was diagnosed until death. This is a considerably longer period than the average survival of 2.6 days and 2.1 days for patients given fair and poor treatment. The patients receiving no specific treatment lived an average of 1.2 days after the recognition of the disease.

Discussion

Steele and Gottlieb,[1] in their review of the literature through June, 1940, covering 115 cases of pneumococcal meningitis treated with the sulfonamides, found that 69, or 60 per cent, of the patients recovered. The general experience of those interested in this disease indicates that such a recovery rate is unusually optimistic. The reason why this high figure was obtained by Steele and bulk of unsuccessfully treated cases remains unreported.

The recovery rate was somewhat lower (45 per cent) among the remaining cases in Steele and Gottlieb's review (reported in groups of four or more). In the two large series of cases reported since the above review was made, as previously mentioned, the recovery rates were still lower, Rhoads and his associates[2] reporting 32 per cent recoveries among 22 patients and Neal et al.[3] 33 per cent among 30 patients. Thus, it is seen that the larger the number of cases in a given series, the lower the recovery rate. If a large enough series of cases were studied, especially if all the cases occurring in a given area were included, a figure close to the true recovery rate would be obtained. This is what we have attempted to do in the present study, with the result that we have found only 4 recoveries among 72 patients. When the patients who did not receive adequate treatment are eliminated from the study, there remain 39 patients, among whom 4, or 10 per cent, recovered. This may be considered the percentage of recoveries obtained by physicians in this locality, in private and hospital practice, using the optimal treatment available at the present time.

Fourteen of the patients in the present series were treated by us personally at the Gallinger Municipal Hospital, with 3 (21 per cent) recoveries. This recovery rate probably represents the usual percentage of recoveries achieved by an active medical service interested in infectious diseases and equipped with the facilities for rapid diagnosis and treatment of pneumococcal meningitis.

If 21 per cent, or approximately one fifth, of the patients with pneumococcal meningitis recover with the best treatment available at present, what

factors appear to alter the prognosis in the individual case? A study of our cases, together with a review of those reported in the literature that have been treated with the sulfonamides, makes it evident that patients who exhibit no other focus of infection are likeliest to get well. We have observed, as Rhoads and his associates have, that when there are many cells and few organisms in the cerebrospinal fluid, the prognosis is distinctly better than when there are fewer cells and many bacteria. A higher death rate occurs in the very young and the very old, as in most infectious diseases. The type of infecting pneumococcus seems to have no effect on the prognosis. We could find no correlation between the day on which treatment was begun and the outcome of the case. However, since the diagnosis was not always made promptly and since it was difficult to determine the exact onset of the disease in many cases, these data are not very reliable.

Our figures indicate that sulfapyridine is superior to sulfanilamide, since all 4 recoveries occurred among the 41 patients treated with sulfapyridine with and without serum, and none of the 30 patients treated with sulfanilamide, alone or with serum, recovered. The few patients treated with sulfathiazole and the 1 patient treated with sulfadiazine died. It is quite likely that Steele and Gottlieb's finding that a greater percentage of patients recovered after receiving sulfanilamide than after the administration of sulfapyridine was due to the fact that sulfanilamide was the first of the drugs to be used and any recovery was worth reporting. By the time sulfapyridine was introduced, recovery from pneumococcal meningitis was no longer rare, and many cases of recovery were undoubtedly not reported.

No conclusion can be drawn from our cases concerning the efficacy of specific serum in addition to the sulfonamides. Three of our patients who recovered received the combined therapy, whereas the fourth received sulfapyridine alone. Until more evidence is available, we believe that serum and sulfapyridine or sulfadiazine should be used in combination.

Summary

An analysis of all the cases of pneumococcal meningitis, 72 in number, occurring in the District of Columbia between January 1, 1938, and October 31, 1941, is presented.

Only 4 of these patients survived, all of whom were classified among the group of 39 patients who received good treatment with the sulfonamide drugs or specific serum or both. Among the 19 patients who were given only fair treatment, the 9 patients who received poor treatment and the 5 patients who received no specific treatment of any kind, there were no recoveries.

Among the fatal cases, those receiving good treatment survived an average of 7.5 days after the meningitis was diagnosed, and those who were given fair, poor or no treatment survived an average of 2.6, 2.1 and 1.2 days, respectively.

With the best treatment at our disposal today, on an active medical service interested in infectious diseases and equipped with facilities for rapid diagnosis and treatment, the mortality rate from pneumococcal meningitis is about 80 per cent.

The factors influencing the prognosis and treatment of pneumococcal meningitis are discussed.

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THE RECLASSIFICATION OF REPORTED CASES OF TUBERCULOSIS IN MASSACHUSETTS

Preliminary Report

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BOSTON

SINCE 1907, pulmonary tuberculosis has been by law a reportable communicable disease in Massachusetts. All other forms of tuberculosis have, since that time, been added to the list of reportable diseases. With the inception of these legal requirements, there came increased activity on the part of private physicians, local health agencies and the Massachusetts Department of Public Health in finding, treating and following these cases. Altogether, 209,892 cases have been reported in Massachusetts from 1907 to 1940. The percentage of the actual cases that this figure represents is not known. Although the majority of physicians have been conscientious in reporting their cases, others have been lax in this duty. Often, to satisfy a patient's desire for secrecy, reporting of the case has been omitted, the health authorities have had no opportunity to guide the patient, if treatment is neglected, and no search for contact cases has been made. Fortunately, as tuberculosis has come more into the open and as hopeful programs of prevention and treatment have developed, this type of neglect has diminished. Today, the chief sources of error by the physician in failing to report cases appear to be missed diagnoses and lapses of memory.

The duties of the practicing physician are few and simple: to report each case on the proper form to the local board of health; to arrange for treatment and continued observation of the patient in competent hands, with public-health supervision or hospitalization in a sanatorium for the case with positive sputum; and to arrange or to allow the public-health nurse to arrange for the examination of contacts.

A more frequent resort to roentgenograms of the chest, to thorough sputum analysis for tubercle bacilli (including the more sensitive methods if smears are negative) and, finally, to consultation in suspected cases will prevent missed diagnoses in pulmonary cases. In extrapulmonary cases, which are usually recognized with less difficulty, doubt should also lead to consultation.

The duties of the local boards of health to the reported cases are as follows: the physician in charge of the case should be consulted and a periodic record kept of the progress of the case as given by him or by nursing visits; if the patient neglects treatment with the doctor, a visit to the home should be made for the purpose of persuading the patient to take proper treatment and to have periodic checkups by his physician or in public clinics; the home should be investigated, and arrangements made for the x-ray examination of all household contacts, if the private physician has not already arranged for this.

In 1936, the Division of Tuberculosis of the Massachusetts Department of Public Health first undertook to investigate and advise local boards of health regarding their lists of reported cases. It was found that in most localities these lists had grown to such a high figure that it was beyond the ability of the local nurse to follow every case. Many lists had not even been corrected for deaths, removals to other towns, unlocated cases and so forth. It was believed that it would be possible to revise these lists by a reclassification of all reported cases and by the establishment of new lists for the cases still in need of observation. This revision was first carried out during the summer months, when the personnel of the state school clinics was available to do the work. Since July, 1939, the work has been carried on throughout the year, aided by a grant from the United States Public Health Service providing for full-time personnel and necessary equipment. It has been possible, as a result of this study, to reduce the lists of cases requiring further observation to a workable number. It is hoped that this will stimulate greater activity by the boards of health in following tuberculous patients and their families.

The reclassification has been carried out thus far in one hundred and thirty cities and towns of Massachusetts, in most of which clinics have been held following a preliminary exclusion of all deaths, removals to other places and unlocated cases. Cases having recent roentgenograms of the chest — that is within twelve months — available in local sanatoriums were first reviewed there and, if possible, were reclassified without being invited to the clinic. A home visit was made in each of the remaining cases by the local public-health nurse, and the patient was asked to attend the clinic. Of those refusing to come, either local

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histories or x-ray films were reviewed, and the cases thus reclassified.

As the patients come to the clinic, complete medical histories of their disease are recorded, and physical, x-ray and sputum examinations made. The cases were finally classified as follows.

Active list. This group, which requires further study, includes all pulmonary cases showing active disease by clinical findings, by x-ray examination or by positive sputum; all cases in sanatoriums at the time of reclassification; cases thought to be inactive clinically but not yet followed long enough to be unmistakably so; all cases under collapse therapy (including thoracoplasty cases), regardless of health or x-ray findings; and extrapulmonary patients in sanatoriums who have discharges or clinically active disease.

Inactive list. This group, which does not require further follow-up, comprises inactive cases of pulmonary tuberculosis in which the patient has been symptom free for several years and in which there is x-ray evidence of healed fibrotic or calcified lesions, or negative x-ray films and negative sputum — in many cases, films taken over a period of eight to ten years are available for determination of the status of the lesions; pulmonary cases proved to be nontuberculous, including bronchiectasis, asthma and cardiac disease; extrapulmonary cases without symptoms, physical signs or discharges, and having a negative x-ray film of the chest; and childhood-type cases in patients past school age.

Contact observation. This group includes reported cases without present evidence of tuberculosis but kept for observation because of contact history.

School clinic. This group consisted of primary (childhood-type) cases of school age, kept for observation by the school clinic. (It should be noted that primary tuberculosis is no longer a reportable disease in Massachusetts.)

The reclassification of the individual case is a difficult problem, each case being decided on its own merits. It is impossible to establish fixed rules for such a procedure. Ideally, every case of pulmonary tuberculosis would be followed by periodic checkup into old age. With the scant funds and limited personnel usually assigned to tuberculosis work in most communities, such a program is impossible, and the number of cases to be followed must be kept at a workable figure. Although it is apparent that almost any case of pulmonary tuberculosis may become reactivated, cases with a long history of arrested disease are less apt to do so than those known to have had recent activity. Arbitrarily, then, in a reclassification of this sort, the latter group constitutes the bulk of cases kept for observation after an initial list of cases with active disease has been established. Emphasis falls, of course, on the pulmonary group, in which the real menace to the public health lurks. In all cities and towns where we have conducted clinics, we have attempted to emphasize the value of control of proved cases. The follow-up of negative contacts (especially in children under ten years of age) is overdone in many communities, is of secondary importance and should be sacrificed when economy of effort is required.

TABLE 1. *Summary of Findings in 2286 Reclassified Cases.*

TYPE OF CASE	NO. OF CASES	CLASSIFICATION			
		ACTIVE LIST	INACTIVE LIST	CONTACT OBSERVATION	SCHOOL CLINIC
Cases at sanatoriums	277	277	0	0	0
Cases with local x-ray films reviewed	842	554 (65%)	264	18	6
Refusals					
X-ray films reviewed	54	22 (40%)	29	3	0
Histories reviewed	397	199 (50%)	192	4	2
Cases examined and x-rayed	716	159 (22%)	528	19	10
Totals	2286	1211 (53%)	1013	44	18

At the end of the reclassification in each city or town, every patient who comes to the clinic is sent a letter stating the reclassification. Patients whose names are placed on the inactive list are advised to have an annual physical examination by their own physicians and to seek advice and treatment at once if they should ever have a return of symptoms.

This preliminary report is based on three cities (Fall River, Brockton and Worcester) whose original lists of reported cases totaled 3215. After the initial check, we were able to remove 929 cases because of deaths, or removals to other cities or because they could not be located in the cities. Of the 2286 cases left for reclassification, Table 1 presents the findings. Perhaps the most interesting finding is that only 22 per cent of the patients who reported to the clinic for examination were thought to require further observation. This figure is indicative of the effective reductions made

in the local lists of reported cases when we were successful in obtaining the co-operation of the patients and in getting them examined. Out of 3215 reported cases listed, only 1211, or 38 per cent, were retained on the active list, an additional 62 being kept for school clinic or contact observation.

Similar reductions are being effected in other cities and towns, and it is believed that the work of the local boards of health is being satisfactorily cut to a point where it can be handled in an easier manner than has hitherto been possible. It is planned to report a further analysis of the material available from these studies at a later date, breaking down the statistics for pulmonary and extrapulmonary cases.

Summary

The methods for and the results of the reclassification of reported cases of tuberculosis in three cities of Massachusetts are outlined and discussed.

CLINICAL NOTE

PERIPHERAL NEURITIS FOLLOWING THE ADMINISTRATION OF A GLUCOSE SULFAPYRIDINE COMPOUND*

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AMONG the toxic reactions that follow the administration of sulfanilamide and its derivatives, involvement of the peripheral nerves is one of the least frequent.[1] This complication has been reported by various authors as occurring after the use of sulfanilamide,[2, 3] sulfathiazole,[4] sulfamethylthiazole[5–7] and disulfanilamide.[8, 9] Apparently, only 2 cases of peripheral neuritis after sulfapyridine have been mentioned in the literature. The first of these[10] is mentioned only briefly and is not fully described. The other case[11] was observed following the use of antimeningococcal serum and sulfapyridine, and since other signs of serum sickness appeared, the neuritis may have been due to the serum as well as to the drug.

While investigating, in a series of 60 patients with pneumonia, the therapeutic effects of glucose sulfapyridine, a crystalline compound synthesized by Dr. Lloyd D. Felton, of the National Institute of Health, I observed a case of peripheral neuritis that was apparently caused by the sulfapyridine portion of the compound. The preparation used was simply a condensation product of the aldehyde group of glucose with the amine group of the aminobenzene radical of the sulfapyridine. Analysis showed it to be a combination of one molecule of glucose with one molecule of sulfapyridine that thus required double the dosage of regular sulfapyridine to achieve similar drug intake.

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Case Report

H. G., a 23-year-old Negro, was admitted to the George Washington Medical Division of Gallinger Municipal Hospital on December 22, 1940. He had developed a cold on December 16 and the following day had noticed fever and pain in the right chest. On December 18, he became dyspneic and had a severe chill. Cough was productive of "prune-juice" sputum. There was no history of excessive indulgence in alcohol, of the use of drugs, of avitaminosis or of any neurologic disease.

Examination showed a well-developed and well-nourished young colored man who appeared acutely ill, with moderate dyspnea accompanied by an expiratory grunt. Physical examination revealed consolidation involving the upper lobe of the right lung; this was confirmed by a roentgenogram. The temperature was 102.4°F., the pulse 104, and the respirations 32. Sputum typing and a culture of the blood taken on December 24 both revealed Type 8 pneumococci. The white-cell count was 19,300, with 66 per cent polymorphonuclears, 23 per cent band forms; 3 per cent young forms and 8 per cent lymphocytes. The red-cell count was 4,520,000, with 78 per cent hemoglobin.

An initial dose of 8.0 gm. of glucose sulfapyridine was given, followed by 2 gm. every 4 hours; 1 gm. of sulfapyridine was substituted for each of two doses of glucose sulfapyridine during the 2nd day of treatment. Blood sulfapyridine levels of the drug reached 4.4 mg. per 100 cc. of free and 10.9 mg. of total sulfapyridine, 4 hours after the initial dose. Thereafter, the levels remained between 1.1 and 2.3 mg. per 100 cc. of free and between 2.2 and 5.4 mg. of total sulfapyridine, except for one rise 28 hours after the beginning of treatment to 5.0 mg. per 100 cc. free and 10.9 mg. of total sulfapyridine. The drug was discontinued on December 27 (the 6th day of treatment), after a total of 50 gm. of glucose sulfapyridine and 2 gm. of sulfapyridine had been given.

On the following day, the patient complained of numbness and tingling and difficulty in flexing the right 4th and 5th fingers. Examination revealed marked hypesthesia to pinprick over the 5th finger and the medial half of the 4th finger and over the ulnar half of the palm and dorsum as far as the wrist. There was no abnormality in ability to distinguish vibration, temperature or position. The patient was unable to distinguish the feel of wetness of water over the affected area. A diagnosis of peripheral neuritis along the distribution of the ulnar nerve was made. The symptoms and signs continued for 2 days, and the patient then left the hospital against advice. When he returned for observation 3 weeks later, all the abnormal signs and symptoms had disappeared.

Although I have seen no other case of peripheral neuritis among patients with pneumonia receiving sulfapyridine or glucose sulfapyridine, I believe that the evidence is unequivocal that the drug was the cause in the case reported. Except for a small amount of codeine and elixir of terpin hydrate, the patient received, during his hospital stay, only the glucose sulfapyridine and the sulfapyridine.

Finland and his coworkers[12] and Ensworth and his associates,[13] investigating a different glucose sulfapyridine compound, found that after absorption from the gastrointestinal tract, the glucose and sulfapyridine were separated. My own experience with the compound used in the present case coincides with this conclusion. So far as therapeutic and toxic results are concerned, sulfapyridine is therefore the only drug involved.

As the evidence accumulates, it is becoming increasingly likely that the conclusion will eventually be reached that most of the toxic manifestations that occur following any one of these drugs may sometimes occur following the use of others in the group. The variations in toxic complications following the different sulfones are therefore largely quantitative. Peripheral neuritis seems to fit into this general scheme. On the evidence of clinical reports up to the present, such neuritis is most frequent following the use of sulfamethylthiazole and disulfanilamide, is fairly often observed after the administration of sufanilamide, and is rare following sulfathiazole. The case reported suggests that this complication, although it is very rare indeed, occasionally follows the use of sulfapyridine.

Summary

A case of peripheral neuritis, with recovery, that occurred after the administration of 50 gm. of glucose sulfapyridine and 2 gm. of sulfapyridine is reported.

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MEDICAL PROGRESS

OPHTHALMOLOGY

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IT is my opinion that the work of greatest ophthalmologic interest and promise during recent years includes clinical and laboratory studies in chemotherapy and vitamin therapy, and in the pathogenesis of cataract and uveitis, and attempts to master corneal transplantation. Chemotherapy and vitamin therapy are accomplishing feats in ophthalmology that were formerly not attainable. Intensive search for the causes of cataract and uveitis — major problems in ophthalmology — has already been too long delayed. Successfully accomplished corneal grafts are salvaging the eyesight of patients heretofore considered incurably blind.

CHEMOTHERAPY

Chinn and Bellows,[1] vanDyke et al.,[2] Spink and Hansen,[3] Long and Bliss,[4] Hill,[5] Rammelkamp and Keefer,[6] Sadusk, Blake and Seymour[7] and others have pioneered the way for sulfonamide therapy (sulfanilamide, sulfapyridine, sulfathiazole and sulfadiazine), with especial reference to solubility, to selective action on invading organisms, to concentration and maintenance levels in blood and tissue, to methods of increasing concentration of the drugs in avascular tissue, and to host idiosyncrasy.

The extent to which the sulfonamides reach the tissues of the eye was studied in dogs by Bellows and Chinn,[8] who found that the maximum drug concentration in blood and eye was reached from four to six hours after administration by stomach tube. On removal of the eyes four hours after uniform dose by stomach, and on analysis of blood and the tissues and fluids of the eye, these workers found the following distribution:

TISSUE	SULFANILAMIDE	SULFAPYRIDINE	SULFATHIAZOLE
	mg./100 cc. or gm.	*mg./100 cc. or gm.*	*mg./100 cc. or gm.*
Blood	18.0	6.1	7.4
Lens	2.7	1.1	0.0
Aqueous	10.9	4.9	0.4
Vitreous	8.4	5.8	0.9
Cornea	13.4	6.8	2.0
Choroid and retina	15.2	6.3	4.9

From these observations, the authors believe that sulfathiazole is less effective in controlling intraocular infection than other sulfa preparations. Scheie and Souders[9] reported similar findings in cats.

Using rabbits, Liebman and Newman[10] found it possible to increase the concentration of the sulfonamides in the aqueous by 50 per cent through repeated paracenteses, the first being made three hours after drug administration, and thereafter at thirty-minute intervals, with comparative results as follows:

DRUG	PRIMARY CONTENT OF AQUEOUS	SECONDARY CONTENT OF AQUEOUS
	% blood conc.	*% blood conc.*
Sulfanilamide	67	96
Sulfapyridine	64	98
Sulfathiazole	17	41
Sulfadiazine	55	102

The increase in concentration in the aqueous is explained by the fact that the secondary fluid is a transudation from capillary blood; such an increase gives the clinician a clue to a more effective method of combating intraocular inflammation.

Caution to the point of timidity on the part of ophthalmologists has led to disappointing results in the early clinical use of sulfa drugs to control eye infections. The maintenance of blood levels of 1 to 3 mg. per 100 cc., with a correspondingly lower level in the avascular tissues of the eye, is apparently not sufficient to curb infection in ocular tissues. Mild eye infections require blood concentrations of 3 to 5 mg. per 100 cc. for five to seven days, and severe infections require levels of 6 to 12 mg. per 100 cc. for a week, as outlined by Guyton and Woods[11] after a careful study of 104 patients. The concentration of the drug in the blood should not exceed 20 mg. per 100 cc. on account of possible toxic effects, and effective concentration in the ocular fluids and tissues may be gained through repeated paracenteses at the peak of blood concentration.

It appears to be the consensus among careful clinicians that sulfanilamide acts more effectively for streptococcus; sulfapyridine for influenza (Koch–Weeks) bacillus, pneumococcus and meningococcus; and sulfathiazole for infections of the eye and adnexa caused by the gonococcus and

Reprints of articles in this series are not available for distribution, but the articles will be published in book form. The current volume is *Medical Progress: Annual, 1940* (Springfield, Illinois: Charles C Thomas Company, 1941. $4.00).

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gram-negative bacilli. Staphylococcus, killed in vitro by sulfathiazole in a concentration of 100 mg. per 100 cc., does not succumb to any sulfonamide level that can safely be administered to patients. Sulfonamide therapy has not proved effective in uveitis, sympathetic ophthalmia (Gamble[12]) or herpetic virus infections of the eyeball.

Clinical success, sometimes verging on the dramatic, has attended sulfonamide therapy in three virus diseases that consistently show basophilic heterogeneous inclusion bodies: trachoma, inclusion blennorrhea and lymphogranuloma venereum. A fourth basophilic inclusion virus, psittacosis, theoretically should succumb to sulfonamide therapy. Other virus diseases, nonvulnerable to these drugs, curiously exhibit acidophilic homogeneous inclusion bodies, according to Thygeson.[13] If one accepts the evidence of Julianelle et al.,[14] Loe[15] and Thygeson,[16] one may believe that the trachoma virus resists local applications of sulfanilamide, or blood levels below 3 to 5 mg. per 100 cc., but that it is cured by the maintenance for one week to ten days of blood levels approximating 10 mg. per 100 cc. Inclusion blennorrhea, hitherto a stubborn disease active for months under previous therapy, now, according to Thygeson,[16] yields in several weeks to sulfanilamide at blood levels of 3 to 5 mg. per 100 cc. Macnie[17] discusses the value of sulfanilamide therapy in lymphogranuloma venereum over all other known therapeutic agents.

Every patient receiving these drugs should have a daily water intake of 2500 cc., repeated blood analyses to check retention of the drug in case of renal damage, and alertness on the part of the physician for appearance of signs of idiosyncrasy. Idiosyncrasy may express itself as acidosis, nausea and vomiting, cyanosis, hematuria, skin rash, fever, hepatitis, acute hemolytic anemia or leukopenia occasionally going on to agranulocytosis and fatal outcome. The discontinuation of the drug should be guided by clinical judgment based on experience.

Sulfonamide idiosyncrasy may express itself in the visual mechanism, showing in the conjunctiva as injection and in the crystalline lens as a transitory myopia. Similar transitory refractive changes are observed in diabetes, jaundice, arsphenamine therapy, alkalosis and dehydration (Granström[18]). In the patient toxic from sulfonamide drugs, shifting of the refraction to myopia, frequently not observed by the patient, may evade the watchful eye of the physician unless carefully sought. Such a shift has been reported by Berns,[19] Spellberg,[20] Gailey,[21] Missiroli,[22] Blankstein,[23] Friedman[24] and Hornbogen.[25]

Vitamin Therapy

Long misinterpreted and little understood, vitamin deficiencies such as night blindness, beriberi, pellagra, rickets, scurvy and sprue are finding explanation in the lack of sufficient vitamins in food, faulty absorption from the bowel, or faulty utilization by the cells of the body. In 1911, Casimir Funk first gave a name to the vital principle, and in 1913 Vedder and Williams[26] first gave proof of the reality of vitamin deficiency. Until chemical structure became known, vitamins had to parade under alphabetical aliases, the letters A to K having been given to clinically recognized vitamins, and the remaining letters to the hypothetical ones. What was formerly known as vitamin B has recently been resolved into at least twelve components, each with different qualities. Therefore, interpretation of vitamin action in the past has been chaotic, and it is just now emerging from the umbra of uncertainty as vitamin principles are synthesized, labeled with chemically descriptive names, and studied separately with respect to physiologic action, synergism and toxicity. Important examples are:

Old Name	New Name	Action
A	Precursor-carotene	Antinyctalopic and antixerophthalmic
B_1	Thiamine	Antineuritic
B_2	Riboflavin	Promotes cell respiration
Nicotinic acid	Niacin	Antipellagrous
C	Ascorbic acid	Antiscorbutic
D	Radiated ergosterol	Antirachitic
E	Alpha tocopherol	Prevents sterility
K	Naphthoquinone	Antihemorrhagic

Salter[27] gives an excellent review of vitamin chemistry and current methods of assay in blood, urine and tissues. Outside the body, some vitamins are decomposed by light, and others are lost in food processing, packing and pasteurization; within the body, there is loss by abnormal excretion in colitis and polyuria, by partial destruction in achlorhydria and liver dysfunction, and by faulty absorption in steatorrhea or in too liberal use of mineral oil. Researches in vitamin chemistry, utilization and fate in the human being are awaited with keen interest by every clinician who wishes to bring his patients factual rather than empirical aid in vitamin therapy.

The advent of vitamin therapy, empirical though it has been, has brought to ophthalmology certain benefits. Yudkin[28] commits himself to the belief, shared by other clinicians, that an adequate vitamin A intake has reduced the incidence of phlyc-

tenular keratoconjunctivitis, hordeola and night blindness. Thiamine deficiency has been inculpated in ophthalmoplegia and in retrobulbar neuritis. Rosacea conjunctivitis and keratitis, with stubborn and recurrent ulceration of the cornea, have been attributed to riboflavin deficiency. Thiamine and riboflavin, along with glutathione, ascorbic acid and nicotinic acid amide, are fundamental to cell respiration. They are not stored in the body, and they must be replenished daily. According to Booher,[29] the inadequacy of riboflavin leads to cell asphyxiation, expressing itself in the adolescent as retarded growth and in the adult as changes in the skin, changes in the central nervous system and changes in the cornea, conjunctiva and crystalline lens of the eye. The minimum requirement of riboflavin for human beings is 3 mg. daily,[30] and it is best obtained from cow's milk, which, during the first month of lactation, contains 5.4 mg. per quart.[31]

Crude thiamine and riboflavin must be converted into the phosphoric acid ester before they are acceptable for cellular oxidation, and phosphorylation is thought to take place in the liver.[32] Cocarboxylase, the phosphoric acid ester of thiamine, in normal amounts acts as an antineuritic; in subnormal amounts, it arrests the oxidation of carbohydrate at the pyruvic acid stage and promotes the development of polyneuritis in the presence of toxic agents. The phosphoric acid ester of riboflavin in normal amounts, according to Veasey,[33] promotes cell respiration, and its absence, as shown by Bessey and Wolbach,[34] leads to anoxia, degenerative changes and attempts to repair by vascularization. Riboflavin does not survive gastric achlorhydria and the alkali of the duodenum. The Snell-Strong method of assay for riboflavin, although not sufficiently accurate for reliable estimate of riboflavin in vivo, capitalizes the fact that *Lactobacillus casei epsilon* cannot synthesize riboflavin and yet cannot survive without it.

Other vitamin B components — synergists and less well understood — are niacin (nicotinic acid), pantothenic acid, biotin and para-aminobenzoic acid. Deficiency of niacin leads to pellagra, with photosensitive dermatitis, keratitis, and corneal ulceration, all of which are relieved by therapy with nicotinic acid amide. György and Eckhardt[35] report that lack of pantothenic acid and biotin leads to blanching of the eyelashes and hair, and later to keratitis. Ansbacher[36] found that para-aminobenzoic acid inhibits the bacteriocidal action of sulfanilamide.

Johnson and Eckhardt[37] demonstrated the healing and remission of vascularization of the cornea when the riboflavin deficit is made up. The following year, Johnson[38] established the clinical relation between the dermatitis, conjunctivitis and keratitis of rosacea and riboflavin deficiency by rapid amelioration of signs by means of riboflavin therapy. He recommends intravenous injections for several days of 2 mg. riboflavin, and concomitant oral administration of riboflavin with hydrochloric acid, since many patients with rosacea exhibit achlorhydria. After the course of treatment is completed, Johnson continues a daily riboflavin-rich diet containing milk, liver and egg-white. Beams, Free and Glenn[39] substantiate the excellent results of Johnson in the relief of rosacea keratitis through riboflavin therapy.

Pathogenesis of Cataract

The term "cataract," derived when oculists were occultists, was then used to denote vision obstructed by advanced degeneration of the lens. Now, with refinements of the biomicroscope uncovering over 100 types of lens blemishes, gross and microscopic, the same blanket term continues to be used indiscriminately, and thus to constitute one of the most flexible and most fearful words in the medical vocabulary. At the caprice of the oculist, any lens blemish may be designated "cataract," whether it is the stationary and microscopic fetal blemish within the nucleus that never obstructs vision, or the equatorial blemish of adolescence that seldom obstructs vision, or the senile radial blemish, which may or may not progress after long periods of status quo, or the intumescent degeneration of the entire lens, with rapid decline in useful vision. For intelligent understanding between oculist, physician and layman, the term "cataract" should be replaced by an exact nomenclature for lens abnormalities that takes into account the lens architecture, and the causation and the ultimate fate of lens abnormalities.

The crystalline lens is an island of epithelium, bathed in aqueous that is a dialysate from capillary blood, devoid of nerve or direct blood supply, surrounded by a semipermeable capsule, and provided with its own oxidation mechanism and its own protective measures for the maintenance of transparency. Its respiratory quotient is unity, its cellular oxidation and metabolism are negotiated by glutathione, ascorbic acid and riboflavin, and its water absorption is counteracted by the cholesterol content. No single theory of cataract causation encompasses or explains all known types of cataract.

The role of calcium and tetany in cataract production has been investigated by Meesmann[40] and by von Bahr.[41] Using the Bakker[42] technic for survival of the rabbit lens in vitro, von Bahr demonstrated that lens changes do not follow low calcium content unless a cataractogenous substance,

an unidentified protein molecule derived from hemolyzed blood, is also present. In his opinion, lens changes do not develop collaterally with human or rat rickets unless the blood calcium falls below 7 mg. per 100 cc., and unless tetany is present. In rickets, tetany is precipitated by the addition of a diet rich in phosphates, which are present in cow's milk. If tetany is transient, the lens blemish becomes zonular, and if tetany is persistent, the blemish becomes total.

Bellows and Chinn,[43] in fifteen papers, the last three of which were published during 1941, express the belief that the crystalline lens is a delicate osmometer, and that cataract is fundamentally the result of osmotic derangement. Paper XIII[44] concerns the two osmotic barriers that separate the blood from the lens cell-fiber system, and the constant interchange through these membranes of water, foodstuffs, oxygen and waste products. Paper XIV[45] deals with injury and altered permeability of the lens capsule and its epithelium. Paper XV[46] describes the swelling of the isolated lens as related to tonicity of the surrounding medium, to ionic content and hydrogen ion concentration, to temperature and to other factors.

Salit,[47] after a study of two hundred and fifty-nine cataractous and sclerosed lenses, removed in capsule, with reference to lipid and cholesterol content, adduces evidence that cholesterol has much to do with the water content of the lens, and that the intumescent stage of cataract is traversed by lenses that are low in the cholesterol-lipid ratio but high in total lipids.

The part played by vitamins in cataract production is suggested in the very low ascorbic acid and riboflavin content of cataractous lenses, and in the fact that the addition of adequate amounts of vitamin D to the diet in rickets and tetany prevents cataract formation.

Pathogenesis of Uveitis

Inflammations of the iris, ciliary body or choroid are frequently recurrent, and each attack may be accompanied by complications that endanger sight, such as glaucoma, cataract, hypotension and heavy vitreous opacities. To curb each attack and to prevent recurrences, it has become the accepted practice to make a detailed search for potential sources of uveitis throughout the body. Seldom is it possible to fulfill the postulates of Koch with respect to uveitis, and it is often impossible to demonstrate anywhere in the body what might be considered an adequate focus.

Duggan[48] has added the concept of tissue anoxia as a potential cause of uveitis, and he hypothesizes release of histamine locally, dilation of the uveal capillary bed, and local tissue anoxia, inflammation and necrosis. He claims to be able to control this vicious circle by active vasodilator therapy, combining daily intravenous injections of 0.1 gm. of sodium nitrite with oral administration daily for two weeks of 15 to 30 mg. of erythrityl tetranitrate. Duggan also speculates on the value of a histamine ferment to destroy the noxious agent.

The search for focus applies to the paranasal sinuses, the teeth, the tonsils, the chest, the abdomen and the pelvis for the presence of pyogenic and nonpyogenic bacterial infection, and for evidence of syphilis, tuberculosis, leprosy, brucellosis and virus infection. Also, one searches for protozoan and animal parasites, which directly or through their toxins have been named as potential sources of uveitis; such parasites are *Plasmodium malariae, Endamoeba histolytica, Treponema pertenue* and *Trichinella spiralis.* Finally, one searches for allergy, particularly for the allergy from bacterial protein, tuberculoprotein and brucellar protein. The relation between arthritis and uveitis has long been recognized clinically.

Concurrence does not prove pathogenesis. From the clinical standpoint, improvement of the ocular inflammation and avoidance of ocular complications and of recurrences are the goals sought. From the standpoint of true etiology, one must be able to recover the causative agent, and to reproduce the same disease in a healthy eye. Until this requirement has been met, the pathogenesis of uveitis cannot be considered solved.

After a thoroughgoing clinical study of 244 house patients with uveitis at the Johns Hopkins Hospital, Guyton and Woods,[49] by clinical criteria, have allocated "causes" as follows: tuberculosis, 54 per cent; syphilis, 19 per cent; focal infection, 14 per cent; gonococcal infection, 4 per cent; and miscellaneous, 9 per cent. They do not claim that they are able to demonstrate actual micro-organisms within the infected tissues, a feat seldom accomplished in uveitis by the most meticulous staining or cultural methods. They do not report vitamin assay or virus cultures as part of their study.

Corneal Transplantation

Nizetic[50] has reviewed a century of mostly unsuccessful effort to engraft healthy and clear cornea on an eye that lacks a transparent cornea, and he has outlined the contributions made by various workers.

Castroviejo[51] is beginning to obtain gratifying results after having performed four hundred keratoplasties on animal eyes and over two hundred keratoplasties on human eyes. His chief difficulty at present seems to be lack of donor material, rather than lack of recipients or technical difficulty

in transferring the graft. Using a double-bladed knife with blades set 4 mm. apart, the operator outlines in donor and recipient corneas a 4-mm. square, cutting through two thirds of the corneal thickness. Having used fluorescein to mark the initial incision thus made, the operator completes the incision through the cornea on one side of the square with a narrow 45°-angle keratome, cutting through the posterior third of the thickness of the cornea on a bevel. The other three sides of the square are cut through on a bevel by special scissors. Thus, the graft, 1 mm. thick and 4 mm. on each of its four sides, shows in the anterior two thirds of its thickness perpendicular sides, and in the posterior third of its thickness a 20° beveling, which prevents the graft from slipping into the anterior chamber. Formerly, the graft was held in position by a superimposed conjunctival flap. Now, the graft is held in place by a well-designed suture, which is looped over the graft from the insertion points in the adjacent peripheral cornea.

To meet the need for sufficient donor material, Castroviejo[52] has worked out a satisfactory method for preservation of corneal tissue in a moist chamber kept at 2°C. Thus, a cornea may be preserved for nine days free from demonstrable histologic changes. To obtain the best results, donor material is used, if possible, at once or within twenty-four hours of removal from the donor. If necessary, the operator may take four grafts of proper size outlined above from one donor cornea.

Following the lead of European workers, — notably Salzer and Magitot, — Wiener and Rosenbaum[53] have experimented with chemically fixed corneas from dogs and rabbits as donor material. From nine formalinized donor corneas, they report eight takes. From eight donor corneas, fixed with Ptrunkowitsch's solution, they report seven takes. Healing is very slow with chemically fixed grafts, because the stroma of the graft must be replaced by the fixed cells of the recipient's cornea, and the epithelium and endothelium of the graft must be reformed from those of the recipient.

5 Bay State Road

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MASSACHUSETTS MEDICAL SOCIETY

PROCEEDINGS OF THE COUNCIL

Annual Meeting, May 25 and 26, 1942

THE annual meeting of the Council of the Massachusetts Medical Society was called to order at 7:00 p.m. in the Georgian Room of the Hotel Statler, Boston, on Monday, May 25, 1942, by the president, Dr. Frank R. Ober, Suffolk; 226 councilors were present (Appendix No. 1).

The Secretary presented the record of the special meeting held on April 15, 1942, as published in the *New England Journal of Medicine*, issue of May 14, 1942. This record was approved by the Council on a motion by Dr. Walter G. Phippen, Essex South, and a second by Dr. W. Jason Mixter, Suffolk.

The following nominating councilors answered the roll call by the Secretary: W. D. Kinney, Barnstable; P. J. Sullivan, Berkshire; W. H. Allen, Bristol North; E. F. Cody, Bristol South; G. L. Richardson, Essex North; Bernard Appel, Essex South; A. G. Rice, Hampden; L. B. Pond, Hampshire; R. R. Stratton, Middlesex East; W. H. Sherman, Middlesex North; Dwight O'Hara, Middlesex South; D. D. Scannell, Norfolk; D. B. Reardon, Norfolk South; W. H. Pulsifer, Plymouth; W. B. Breed, Suffolk; R. P. Watkins, Worcester; and B. P. Sweeney, Worcester North. W. J. Pelletier, alternate member, responded for Franklin. The Committee on Nominations, so constituted, retired to deliberate.

Dr. J. Harper Blaisdell, Middlesex East, moved that if and when the annual meeting of the Council recesses it be until Tuesday, May 26, 1942, at the end of the Annual Discourse, which concludes the annual meeting of the Society. This motion was seconded by Dr. William M. Collins, Middlesex North. Dr. Blaisdell explained that this motion was offered for the purpose of giving the annual meeting of the Council the opportunity to fulfill its obligations when and if the annual meeting of the Society adopted the by-laws which were to be presented to it. This motion was unanimously adopted by the Council.

Reports of Standing Committees

Executive Committee

The Secretary in presenting the report (Appendix No. 2) said that this committee had held five meetings since the stated meeting of the Council in February, 1942, and that two of these meetings were by way of hearings which were granted to the Committee on By-Laws, together with the members of those committees likely to be affected by certain proposed changes in the by-laws. He added that one of these meetings was an all-day session and that the other lasted for five hours.

The third meeting was held on April 15, 1942. At this meeting a communication was received from Dr. Hugh F. Hare, secretary of the New England Roentgen Ray Society, expressing the desire of that organization that roentgenology and physical therapy be divorced in the sectional setup of the Massachusetts Medical Society and that a new section, to be known as the Section of Roentgenology, be established. The Executive Committee so recommended. The chairman of the Committee on Physical Therapy was acquainted with the recommendation. The Secretary then moved the adoption of this recommendation by the Council. This motion was seconded by Dr. Carl Bearse, Norfolk, and carried by vote of the Council.

The Secretary said that the fourth meeting was held on May 6, 1942. He added that Dr. Edward L. Kickham, Norfolk, was named as the choice of a special committee appointed to select a medical director for Massachusetts Medical Service and that this choice was confirmed by the Executive Committee. The Secretary moved that the Council of the Massachusetts Medical Society approve this act of the Executive Committee. This motion was seconded by Dr. George Leonard Schadt, Hampden, and so ordered by vote of the Council.

The Secretary announced that at the same meeting the Executive Committee, acting in the name of the Massachusetts Medical Society, approved of a board of directors for Massachusetts Medical Service (for personnel of the Board, see Appendix No. 2). He moved that the Council approve this act of the Executive Committee. This motion was seconded by Dr. John B. Hall, Norfolk, and so ordered by vote of the Council.

The Secretary said, for the information of the Council, that, at a meeting of the members of the Massachusetts Medical Service, all members present signed a petition for the incorporation of Massachusetts Medical Service, Mr. E. L. Twomey was elected clerk, Dr. Charles S. Butler, treasurer, and Dr. Edward L. Kickham was named as the members' choice for the medical directorship of the proposed corporation.

The Secretary spoke of an emergency session of the Executive Committee held on May 15, 1942,

at the request of Dr. Reginald Fitz, chairman for the Procurement and Assignment Service in Massachusetts. He said that Dr. Fitz proposed the following question:

> Would the Executive Committee of the Massachusetts Medical Society be willing to recommend to the Council on Medical Education and Hospitals of the American Medical Association, during the present emergency, that men, from unrecognized schools, who have spent four academic years of thirty-two weeks each in a school legally chartered to teach the practice of medicine, who have received a diploma as a doctor of medicine from such a school, who are licensed to practice medicine in a sovereign state, who have had a year's internship in a registered hospital (not necessarily one approved by the American Medical Association for intern training), and who are American citizens, be eligible for commission in the armed forces with the proviso that such men be declared available for this distinction by the local and state committees for procurement and assignment in the area where they reside and on the written recommendation of five doctors in such areas who are graduates of recognized schools?

The Secretary said that the Executive Committee answered the question in the affirmative. The Secretary then moved that the Council approve this act of the Executive Committee. The motion was seconded by Dr. Phippen.

Dr. Reginald Fitz, Suffolk, in speaking for the adoption of the motion, said that he had recently been in Chicago and that he had placed this matter before the Council on Medical Education and Hospitals of the American Medical Association and likewise before a special committee from the American Association of Medical Colleges. He added that these groups, while friendly toward the proposition and sympathetic with its purposes, felt that it was largely a local matter that should be handled by the Massachusetts Medical Society itself.

Dr. John J. Curley, Worcester North, in speaking against the adoption of the motion, said that if we give unanimous support to the motion we are recommending that Middlesex men are capable and should be allowed in the armed forces of the United States. He added that we are told that graduates of approved medical schools will not volunteer. He said that he did not believe that this was so. Medical men of Massachusetts, he continued, have been waiting for the Procurement and Assignment Service to tell them when and where they are going to war and this agency has absolutely no power to tell anybody when and where they are going to war.

Dr. Phippen said that, as chairman of Procurement and Assignment Service of the First Corps Area, he thought it necessary that he should talk on this subject. He spoke as follows:

> I think it is incumbent upon me to say a few words. In the first place, let me say that the Procurement and Assignment Service has had the most hearty and cordial relations with the selective-service boards, with the Surgeon-General's Office of the Army and of the Navy, and with the United States Public Health Service; we are not in any argument at all with them. It is perfectly true that the Procurement and Assignment Service cannot tell a man that he should go to war, and we cannot tell him he should stay out of it. All we can do is to say that he is available for military service or that he is essential to his community.
>
> The graduates of second-rate schools have presented a problem that has been very difficult to handle. The Surgeon-General of the Army has already issued an edict that any graduate of a Class B medical school who is registered to practice medicine in his state, who is practicing medicine in his state, who is a member of his state medical society and who can be vouched for by five graduates of an approved medical school is eligible for a commission in the Army. That edict has gone through and has been issued. The selective-service boards are all cognizant of that fact. These boards do not want to induct a man who has had a medical education or any medical qualification at all into service to carry a musket. That is silly on the face of it. The Army needs doctors.
>
> We hope that this motion will prevail. We feel that graduates of Middlesex and other second-rate schools can be taken into the Army, can be adequately trained in the Army, and can be made efficient doctors. The Army certainly can handle these men a great deal better than we can handle them in civilian practice. And it is not sensible to leave these men behind to do all the practice left behind by graduates of first-class medical schools. We sincerely hope that the Surgeon-General of the Army will take these men into the service, will put them in training camps and will help to better their medical education — and we believe that he will. There is a pool of six or seven — possibly more — doctors in Massachusetts in this grade, men really needed by the service. Most of these boys want to go. I have had interviews with any number of them. They come to me and say, "Why can't I go? I should like to go and do my share. But just because I am a graduate of a second-rate school they won't let me, and I don't see why I can't serve my country just as well as the graduates of a Grade A school." And he is right. He has a right to serve his country if he wants to, but we want to make that man carry a musket. It is silly. I sincerely hope that this motion will prevail. It is a problem we have considered at great length. We get very little satisfaction in talking with people who do not know anything about it. It does prevail in Illinois but not elsewhere. I sincerely hope that this motion will be carried.

Dr. Herman C. Petterson, Norfolk, pointed out that, at the moment, we are in a fight for our lives and that it does not make any difference whether or not we are going to be dislocated so far as our practice is concerned.

He spoke also of knowing certain graduates of nonapproved schools who were capable and ethical in their practice. He added that these men want

to do their part and they should be given some consideration.

There was a demand for the question from several sources. The motion was put by Dr. Ober, and it was so ordered by vote of the Council.

The Secretary moved the acceptance of the report of the Executive Committee as a whole. This motion was seconded by Dr. Hall and so ordered by vote of the Council.

Committee on Membership — Dr. G. Colket Caner, Suffolk, chairman.

This report (Appendix No. 3) was presented by Dr. Caner. It recommended that two fellows be allowed to retire, that five fellows be recommended for affiliate fellowship in the American Medical Association, two fellows be allowed to resign, that the dues of two fellows be remitted, that three fellows be allowed to change their membership from one district to another without change of legal residence and that seven fellows be recommended for readmission.

The report further recommended that the Council rescind its action of February 4, 1942, whereby it deprived Dr. George B. Coon, of Greystone Park, New Jersey, of fellowship for nonpayment of dues. Dr. Caner announced that his committee had learned that Dr. Coon died on January 18, 1941.

Dr. Fitz moved that this report and the recommendations contained therein be adopted. The motion was seconded by Dr. Phippen, and it was so ordered by vote of the Council.

Committee on Financial Planning and Budget — Dr. John Homans, Suffolk, chairman.

The Secretary read a letter from Dr. Homans in which he said that his committee had nothing to report.

Committee of Arrangements — Dr. William T. O'Halloran, Suffolk, chairman.

Dr. O'Halloran announced that Dr. Conrad Wesselhoeft, Suffolk, would take Dr. Place's spot on the scientific program tomorrow, that the annual dinner would take place in the Georgian Room instead of the Salle Moderne, that Dr. Frederick J. Lynch would act as chairman at the fourth general session on Wednesday afternoon and that the Section of Obstetrics and Gynecology had changed the place of its meeting and luncheon on Wednesday noon.

Dr. O'Halloran moved the adoption of this report as one of progress. The motion was seconded by Dr. Isaac R. Jankelson, Norfolk, and it was so ordered by vote of the Council.

Committee on Publications — Dr. Richard M. Smith, Suffolk, chairman.

No report.

Committee on Ethics and Discipline — Dr. Ralph R. Stratton, Middlesex East, chairman.

This report (Appendix No. 4) was presented by Dr. William J. Brickley, Suffolk, who said that the committee held two meetings since its last report and that it feels that a careful study of the *Code of Ethics* of the Massachusetts Medical Society and that of the American Medical Association by the fellows would lighten, to a considerable extent, the work now carried on by it.

Dr. Brickley moved the acceptance of the report. This motion was seconded by Dr. Edwin D. Gardner, Bristol South, and it was so ordered by vote of the Council.

Committee on Medical Education — Dr. Robert T. Monroe, Norfolk, chairman.

The report (Appendix No. 5) was offered by Dr. Monroe. He said that his committee had held two meetings. At the two meetings, 53 graduates of foreign medical schools were considered, of whom 31 (59 per cent) were accepted, as compared with 92 last year, of whom 64 (69 per cent) were accepted. The prediction that the number of applicants from foreign schools would decrease has proved true so far. Also, 87 graduates of unapproved domestic medical schools were considered, of whom 49 (56 per cent) were accepted. This compares with 80 a year ago, of whom 27 (33 per cent) were accepted. There seems to be no change in the number of applicants from these schools, and in general the local boards of membership found in their favor more often than they have done in the past. During the year only 130 graduates of approved schools applied, or 10 less than the number in the other two categories. Some of this falling off may be attributed to the claims of the armed forces on these men. However, the continued decrease, both in numbers and proportions, of graduates of Class A schools seeking membership in the Society is a source of real concern to the committee and merits serious study. Dr. Monroe added that a list of medical schools approved by the committee was appended to the report.

Dr. Monroe moved that the report be accepted. This motion was seconded by Dr. Phippen, and it was so ordered by vote of the Council.

Committee on State and National Legislation — Dr. Henry C. Marble, Suffolk, chairman.

This report (Appendix No. 6) was offered by Dr. Marble, who moved its acceptance. This mo-

tion was seconded by Dr. Richard M. Smith, Suffolk, and it was so ordered by vote of the Council.

Committee on Public Health — Dr. Francis P. Denny, Norfolk, chairman.

No report.

Committee on Medical Defense — Dr. Arthur W. Allen, Suffolk, chairman.

The report* was read by Dr. Allen. It reads as follows:

There are at present seven cases pending. During the past year, two cases have been successfully disposed of — one being dismissed for lack of prosecution, and the other having been carried to the Supreme Judicial Court after a trial judge had directed a verdict for the defendant in the proceedings of 1940. The Supreme Judicial Court upheld the action of the trial judge.

One new case has been accepted for defense during the past year.

Since many of our fellows are going into military service, the question has been raised regarding the possibility of lawsuits while on active duty. We have obtained an opinion from our attorneys regarding this point and quote in part as follows:

> It would seem to me that it would be desirable for members of the medical profession who are in the United States Army or Navy to proceed on the assumption that there might be liability for negligent treatment. In the first place, . . . the law is not clear. In the second place, whether or not there can be a recovery against a man in these circumstances, he cannot prevent suits being brought against him and, if suit is brought, he is put to the expense of engaging a lawyer to defend him. Furthermore, although he is in the Army and engaged in his army duties most of the time, he may be called upon under some circumstances to treat someone who is a civilian, in which case there is no doubt that he is liable for negligence. It should be borne in mind that the fact that a doctor is not paid by his patient for the treatment he renders has no bearing on the question whether or not the doctor can be sued. I would therefore recommend that those members of the medical profession who have in the past carried malpractice insurance should, in order to be on the safe side, continue to do so while they are in the military service.

The above opinion is in accordance with editorials on the subject in the *Journal of the American Medical Association*, page 936, issue of September 13, 1941, and in the *New England Journal of Medicine*, page 700, issue of April 23, 1942.

It seems to the committee that this recommendation by our attorneys regarding our members and their malpractice insurance should apply also to the members who do not carry malpractice insurance. In fact, that they remain members in good standing while in military service without the payment of dues, may cause them to be careless about re-establishing their status in the Society when they are released from military service. It is recommended therefore that all members be careful to make known their return to a civilian status as soon as they are discharged from military service, since it is necessary for them to be members in good standing at the time of an alleged malpractice if they are to benefit from the legal support given by the Society under such circumstances.

*This report is here reproduced in toto because of its great importance to members of the Massachusetts Medical Society.

Dr. Allen moved the acceptance of the report and the adoption of the recommendations contained therein. The motion was seconded by Dr. Hall, and it was so ordered by vote of the Council.

Committee on Permanent Home — Dr. William H. Robey, Suffolk, chairman.

Dr. Robey reported as follows:

At a meeting of the Committee on Permanent Home held on May 13, 1942, it was voted that it is inadvisable at present for the Massachusetts Medical Society to purchase and furnish a building to be used as a headquarters house. Recently we have considered two buildings, one quite near the Boston Medical Library and one quite remote from it, but neither would be satisfactory. From time to time I have discussed this problem with members living in and out of Boston, and I have yet to find any member who has expressed the slightest enthusiasm over such a project. It would be difficult to secure at present any space which would be superior to what we have now in the Boston Medical Library. Later even more space may be available in the library building.

The *New England Journal of Medicine* is satisfactorily located in the library building, and the editors find the library a very necessary adjunct. All bibliographical references cited in manuscripts are checked in the library before publication.

Many of us would deplore a separation of the Society from the library and believe that the Massachusetts Medical Society should do all in its power to assist the Boston Medical Library, which, as many of us know, is the fourth in importance in the United States.

Dr. Robey moved that the decision of his committee be accepted. This motion was seconded by Dr. David Cheever, Suffolk, and it was so ordered by vote of the Council.

Dr. Robey moved that the President appoint a committee of five members, one of whom shall be the Treasurer of the Massachusetts Medical Society, to see if anything can be done by the Society to help the Boston Medical Library. This motion was seconded by Dr. Albert A. Hornor, Suffolk, and it was so ordered by vote of the Council.

Reports of Special Committees

Committee on Cancer — Dr. Shields Warren, Suffolk, chairman.

No report.

Committee on Public Relations — Dr. Elmer S. Bagnall, Essex North, secretary.

No report.

Committee on Tax-Supported Medical Care — Dr. Bagnall, chairman.

The report (Appendix No. 7) was offered by Dr. Bagnall, who moved its adoption. The motion was seconded by Dr. Hornor, and it was so ordered by vote of the Council.

Committee Concerned with Prepayment Medical-Care Costs Insurance — Dr. James C. McCann, Worcester, chairman.

No report.

Committee Concerned with Postpayment Medical-Care Costs through Banks — Dr. Bagnall, chairman.

Dr. Bagnall read the report (Appendix No. 8). This report recommended that this plan be adopted in principle, the details to be worked out by the Committee on Public Relations and initiated when completed.

Dr. Bagnall moved the adoption of the recommendation. This motion was seconded by Dr. Gardner.

Dr. Schadt inquired how this scheme compares with the method of financing offered by the Morris Plan. Dr. Bagnall said that the Morris Plan group of banks in this area vary in their interest charges. He added that he had in his book some of the rates of interest charged for carrying these loans and that none were anywhere near as favorable as this one.

Dr. Ober put the motion, and it was carried by vote of the Council.

Committee on Postgraduate Instruction — Dr. Reginald Fitz, Suffolk, chairman.

Dr. Fitz, in reading the report (Appendix No. 9), said that interest in postgraduate study had met a great distraction — the war. He added that in 1941–1942 twelve districts did not have any course, while nine continued with greatly reduced enrollment. He complimented the faculty on the excellence of its service.

He said that the Executive Committee and Program Committee of the New England Postgraduate Assembly, at a meeting held on May 12, 1942, had voted to postpone the assembly for the duration. He added that this decision met with the approval of the other New England state medical societies.

He finally announced that the committee is studying the problems of postgraduate instruction in the field of industrial medicine, particularly those related to defense industries, and that an announcement concerning this would appear in the *New England Journal of Medicine* during the summer.

He moved the adoption of the report. This motion was seconded by Dr. Petterson, and it was so ordered by vote of the Council.

Committee on Physical Therapy — Dr. Franklin P. Lowry, Middlesex South, chairman.

Dr. Lowry said in this report (Appendix No. 10) that there are four excellent schools for training physical therapy technicians in Greater Boston. He added that there are also several other schools operated largely from a commercial viewpoint. He added that the training which the latter give is superficial. An article pertaining to the selection of schools for the training of physical therapy technicians is to be printed in *Massachusetts Teacher*, a publication that reaches 27,000 teachers. Dr. Lowry stated that he believed that this article would be of special help to those concerned with vocational guidance.

He moved the adoption of the report. This motion was seconded by Dr. Schadt, and it was so ordered by vote of the Council.

Committee to Consider Expert Testimony — Dr. George Leonard Schadt, Hampden, chairman.

This report (Appendix No. 11), offered by Dr. Schadt, spoke of the difficulties that the committee had encountered since its creation in 1936, in consequence of which not very much has been accomplished.

Dr. Schadt moved the adoption of the report. This motion was seconded by Dr. Gardner.

Dr. Ober, in this connection, spoke of a talk on this subject that he gave last winter before the Massachusetts Law Society. He added that the officers of that society promised that a committee would be appointed to collaborate with the committee of this Society. He pointed to Minnesota as evidence of how fruitful such collaboration might be.

The motion was adopted by vote of the Council.

Committee on Industrial Health — Dr. W. Irving Clark, Worcester, chairman.

No report.

Dr. Ober referred to three March issues of the *Journal of the American Medical Association*, which outline the functions of such a committee. He added that we should work with the Industrial Health Council of the American Medical Association.

Committee on Army Medical Library and Museum — Dr. Henry R. Viets, Suffolk, chairman.

No report.

Committee to Examine WPA Records — Dr. Guy L. Richardson, Essex North, chairman.

Dr. Richardson spoke in this report (Appendix No. 12) of the reduced number of WPA accidents consequent on the decreased employment under this auspices. He added that the State Compen-

sation Officer felt that this committee had been of immeasurable help in adjusting unreasonable charges and claims.

He moved the adoption of the report. This motion was seconded by Dr. William E. Browne, Suffolk, and it was so ordered by vote of the Council.

Committee on Maternal Welfare — Dr. Judson A. Smith, Suffolk, chairman.

No response.

Committee on Rehabilitation — Dr. William E. Browne, Suffolk, chairman.

Dr. Browne in this report (Appendix No. 13) spoke of the several steps that the committee had taken to make the Massachusetts Medical Society of help to the selective-service officials in the matter of the rehabilitation of rejected selectees. He added that Colonel Donald E. Currier, of the Massachusetts Selective Service System, had expressed his willingness to use the machinery of the district medical societies in determining the qualifications of certain doctors suggested by various selective-service boards throughout the state and by others.

Dr. Browne asked the Council to approve the action of the Committee on Rehabilitation in assuring those in charge of selective-service boards in Massachusetts that the various district medical societies and the Massachusetts Medical Society as a whole would co-operate in this matter.

Dr. Browne moved that the action of the Rehabilitation Committee be approved. This motion was seconded by Dr. William M. Collins, Middlesex North, and it was so ordered by vote of the Council.

Committee to Study the Practice of Medicine — Dr. Dwight O'Hara, Middlesex South, chairman.

No report.

Committee of One to Visit Various State-Aided Cancer Clinics — Dr. Channing C. Simmons, Suffolk.

No response.

*Committee on Procurement and Assignment** — Dr. Reginald Fitz, Suffolk, chairman.

Dr. Fitz read his report (to be published as an original article in the July 2 issue of the *Journal*) and moved its acceptance. The motion was seconded by Dr. Charles F. Wilinsky, Suffolk.

Dr. Carl Bearse, Norfolk, asked the following question, "Inasmuch as the draft age is forty-five, what is the necessity for selecting the figure forty-two years?" Dr. Fitz, by way of answering this question, stated that the Surgeon-General of the Army has said, over and over again, that what they want are a certain number of men of the rank of a first lieutenant, a smaller number of men of the rank of captain, a fewer number still of the rank of major and practically no lieutenant-colonels or colonels. It has been found out by past experience that a man who is forty-five years old has to be given a rank higher than lieutenant because he will not do the job of lieutenant so well as a younger man. Therefore, they are trying to get the younger men first, and then they will go later to this older group if they cannot obtain the necessary number of younger men that they so vitally need.

Dr. Raymond A. McCarty, Middlesex South, asked if a man who has been cleared by the Procurement and Assignment Service is notified by this agency provided he has already volunteered. Dr. Fitz replied that, as Dr. Curley brought out earlier, the Procurement and Assignment Service should carry a man until that man volunteers, so that in any district a man must be cleared by Washington before he can volunteer for service.

Dr. Fitz's motion to adopt the report was carried by vote of the Council. Dr. Fitz was granted permission to present this report to the third general session of the Society on Wednesday morning, May 27.

Committee on Nominations.

Dr. Guy L. Richardson, Essex North, reported for the committee the following list of officers:

For president-elect: Roger I. Lee, Suffolk.
For vice-president: Peirce H. Leavitt, Plymouth.
For secretary: Michael A. Tighe, Middlesex North.
For treasurer: Charles S. Butler, Suffolk.
For orator: Edward P. Bagg, Hampden.

These nominations were greeted with applause.

Dr. Ober asked for nominations from the floor. There were none. Dr. Bearse moved that the nominations be closed. Dr. Fitz seconded the motion, and it was so ordered by vote of the Council.

Dr. Wilinsky moved that the Secretary be instructed to cast one ballot bearing the names submitted by the Committee on Nominations. This motion was seconded by Dr. Jankelson, and it was so ordered by vote of the Council. The Secretary announced that he had complied with this direction.

Dr. Ober declared, amid great applause, these men elected.

New Business

President Ober announced his nominations for the various standing and special committees for 1942 and 1943. These nominations were confirmed

*This is not a committee of the Massachusetts Medical Society but a governmental agency reporting to this body out of courtesy.

by vote of the Council. (The list will be published with the proceedings of the Society in the July 9 issue of the *Journal*.)

Dr. Ober announced the death of two councilors.

Dr. Charles H. Dalton, of Somerville, died February 12. He was in his sixty-sixth year.

Born in Charlottetown, Prince Edward Island, Dr. Dalton received his degree from McGill University Faculty of Medicine in 1901. He was on the staff of the Somerville Hospital, and was a fellow of the American Medical Association.

He is survived by his widow and five sisters.

On motion of the Secretary the Council stood in silence for one minute in tribute to the memory of Dr. Dalton.

Dr. William J. Delahanty, of Worcester, died May 10. He was in his eighty-fifth year.

A native of Fitchburg, Dr. Delahanty received his degree from Dartmouth Medical School in 1883. He was an incorporator and a member of the staff of St. Vincent's Hospital, and was on the staff of the Worcester City Hospital for more than fifty years. He was a trustee of the Worcester State Hospital, and was a fellow of the American Medical Association.

On motion of the Secretary, the Council stood in silence for one minute in tribute to the memory of Dr. Delahanty.

Dr. Ober read a communication from the Woman's Auxiliary of the American Medical Association asking that a branch of this auxiliary be set up in Massachusetts. The Secretary moved that the communication be referred to the Executive Committee with the idea of having this committee explore the possibilities of setting up a woman's auxiliary in Massachusetts as part of the Woman's Auxiliary of the American Medical Association. This motion was seconded by Dr. Phippen, and it was so ordered by vote of the Council.

The Secretary presented two nominations for honorary fellowship in the Massachusetts Medical Society: Dr. Carl R. Doering — sponsored by Dr. Eliot Hubbard, Jr., Middlesex South, and Dr. Hilbert F. Day, Middlesex South — and Dr. Walter F. Dearborn — sponsored by Dr. Fabyan Packard, Middlesex South, and Dr. Day. Dr. Day moved that these nominations be referred to the Committee on Membership. This motion was seconded by Dr. Richard M. Smith, Suffolk, and it was so ordered by vote of the Council.

Dr. Ober read a communication from the Hampden District Medical Society inviting the Massachusetts Medical Society to hold its next annual meeting in Springfield. Dr. George A. Moore, Plymouth, moved that the invitation be accepted. This motion was seconded by Dr. Charles C. Lund, Suffolk, and it was so ordered by vote of the Council.

The Secretary presented two certificates for membership in the Massachusetts Medical Society irregularly certified by two boards of censors. He explained that the fault in both these cases lay in the nonobservance of Chapter V, Section 2 (*a*), as this section relates to the timetable governing the admission of graduates of approved medical schools to the Massachusetts Medical Society. The applications were received too late and they were not advertised in the *Journal*. Dr. H. Quimby Gallupe, Middlesex South, said that this matter was discussed in the meeting of the supervising censors held earlier in the day. He added that he was a member of one of the boards of censors certifying one of these candidates and that his board had so acted because it wanted some definite decision in the matter by the Council. This decision would guide his board and all other boards when and if similar circumstances arose. He pointed out that it would be very difficult for doctors entering the service to be promoted if they were not members of their state societies. He said there was a disposition among the supervising censors to facilitate such admissions in the case of graduates of approved schools. With this thought in mind, he offered the following motion:

> The supervising censors recommend that Chapter V, Section 2 (*a*), of the by-laws of the Massachusetts Medical Society, as this section relates to the timetable governing graduates of approved schools in their applications for membership in the Massachusetts Medical Society, be waived, in the interest of those who are either in or who contemplate entering the armed forces of our country and that this regulation shall prevail for the period only of the present emergency.

This motion was seconded by Dr. Petterson.

Dr. Charles E. Mongan, Middlesex South, in seeking information, asked if this motion were passed would the by-laws of the Society be thereby nullified or amended. There was a great deal of debate following Dr. Mongan's question, in which Dr. Petterson, Dr. Frothingham, Dr. Collins, Dr. Mongan, Dr. George C. Tully, Worcester, Dr. W. A. R. Chapin, Hampden, Dr. Cheever, Dr. Fitz, Dr. Denny, Dr. Hornor, Dr. Schadt, Dr. Browne and Dr. Bagnall participated.

Dr. Ober inferentially answered Dr. Mongan's question in the affirmative, by ruling Dr. Gallupe's motion out of order. Some informal discussion continued on the subject. Dr. Ober informed the Council that he would consult counsel and report to the Council the following day, at the recessed meeting, the results of such consultation.

The Secretary moved that the Council postpone action on the two irregular certificates until the

recessed meeting of the Council. This motion was seconded by Dr. Mongan, and it was so ordered by vote of the Council.

Dr. Ober called on the Secretary to read a letter that concerned the approving authority for schools for nurses (Appendix No. 14). Dr. Mongan moved that this communication be referred to the Committee on Medical Education. The motion was seconded by Dr. Horace P. Stevens, Middlesex South, and it was so ordered by vote of the Council.

At this point, 10:30 p. m., the annual meeting of the Council recessed until Tuesday, May 26, 1942.

* * *

The annual meeting of the Council reconvened at 2:45 p.m., Tuesday, May 26, 1942, in the Salle Moderne, Hotel Statler, Boston, Dr. Ober presiding.

Dr. Ober called on the Committee on Nominations for a nomination for the office of assistant treasurer. Dr. Guy L. Richardson, reporting for this committee, named Dr. Eliot Hubbard, Jr. Dr. Ober called for nominations from the floor. There were none. Dr. Hornor moved that the nominations be closed. This motion was seconded by Dr. Fitz, and it was so ordered by vote of the Council. Dr. Smith moved that the Secretary cast one ballot for assistant treasurer bearing the name of Dr. Eliot Hubbard, Jr. The Secretary announced that this direction had been complied with. Dr. Ober declared Dr. Eliot Hubbard, Jr., assistant treasurer of the Massachusetts Medical Society for the year 1942–1943.

Dr. J. Harper Blaisdell, Middlesex East, moved that the councilors elected in 1942 shall continue to serve in 1943 until after the annual meeting of the Society. This motion was seconded by Dr. Hornor, and it was so ordered by vote of the Council, after the Secretary had explained that under the new by-laws the councilors elected by the districts in 1943 would not take office until after the annual meeting of the Society in 1943.

Dr. Ober submitted his nominations for the newly created Committee on Industrial Health. The list will be published with the proceedings of the Society in the July 9 issue of the *Journal*. The confirmation of these nominations was moved by Dr. Smith. This motion was seconded by Dr. Fitz, and it was so ordered by vote of the Council.

The Secretary again called the Council's attention to the two irregular certifications for membership in the Massachusetts Medical Society, action on which had been postponed earlier in the annual meeting of the Council. He moved, in view of the action of the annual meeting of the Society, that these men be declared members of the Massachusetts Medical Society. This motion was seconded by Dr. Walter H. Pulsifer, Plymouth, and it was so ordered by vote of the Council.

Dr. Ober announced that the business on the docket had been completed. Dr. Blaisdell moved adjournment. The motion was seconded by Dr. Pulsifer, and on a vote, the Council adjourned at 2:55 p. m.

MICHAEL A. TIGHE, *Secretary*

APPENDIX NO. 1

ATTENDANCE

Council Meeting — May 25, 1942

BARNSTABLE
W. D. Kinney

BERKSHIRE
I. S. F. Dodd
Solomon Schwager
P. J. Sullivan

BRISTOL NORTH
W. H. Allen
J. H. Brewster
J. L. Murphy

BRISTOL SOUTH
C. A. Bonney, Jr.
R. B. Butler
E. F. Cody
E. D. Gardner
H. E. Perry
P. E. Truesdale

ESSEX NORTH
E. G. Bagnall
R. V. Baketel
L. R. Chaput
J. P. Creed
H. R. Kurth
P. J. Look
R. C. Norris
G. L. Richardson
D. W. Wallwork
C. F. Warren

ESSEX SOUTH
Bernard Appel
H. A. Boyle
C. P. Brown
D. S. Clark
C. L. Curtis
R. E. Foss
P. P. Johnson
A. E. Parkhurst
O. S. Pettingill
W. G. Phippen
H. G. Pope
E. D. Reynolds
J. R. Shaughnessy
J. W. Trask
C. A. Worthen

FRANKLIN
H. L. Craft
W. J. Pelletier

HAMPDEN
F. H. Allen
W. C. Barnes
W. A. R. Chapin
G. B. Corcoran
*S. C. Cox
A. J. Douglas
E. C. Dubois
P. E. Gear
Frederic Hagler
G. D. Henderson
E. A. Knowlton
M. W. Pearson
A. G. Rice
G. L. Schadt

HAMPSHIRE
A. J. Bonneville
R. S. Clapp
J. R. Hobbs
L. B. Pond

MIDDLESEX EAST
J. H. Blaisdell
Richard Dutton
E. M. Halligan
J. H. Kerrigan
K. L. Maclachlan
M. J. Quinn
R. R. Stratton

MIDDLESEX NORTH
M. L. Alling
H. R. Coburn
W. M. Collins
D. J. Ellison
A. R. Gardner
W. H. Sherman
M. A. Tighe

MIDDLESEX SOUTH
C. F. Atwood
E. W. Barron
Harris Bass
J. M. Baty
E. H. Bigelow
W. O. Blanchard
G. F. H. Bowers
R. W. Buck
E. J. Butler
H. F. Day
C. L. Derick
*D. C. Dow
J. G. Downing
C. W. Finnerty
H. Q. Gallupe
F. W. Gay
H. G. Giddings
H. W. Godfrey
A. D. Guthrie
R. D. Halloran
Eliot Hubbard, Jr.
L. H. Jack
A. M. Jackson
A. A. Levi
F. P. Lowry
A. N. Makechnie
R. A. McCarty
Dudley Merrill
C. E. Mongan
J. P. Nelligan
S. J. G. Nowak
E. J. O'Brien, Jr.
Dwight O'Hara
L. G. Paul
Max Ritvo
E. H. Robbins
M. J. Schlesinger
E. F. Sewall
E. W. Small
H. W. Thayer
A. B. Toppan
J. E. Vance
B. M. Wein
M. W. White
Hovhannes Zovickian

NORFOLK
J. R. Barry
Carl Bearse
Arthur Berk
M. I. Berman
William Dameshek
F. P. Denny
Susannah Friedman
David Glunts
B. T. Guild
D. L. Halbersleben
J. B. Hall
R. J. Heffernan
I. R. Jankelson
H. L. Johnson
C. J. Kickham
E. L. Kickham
D. L. Lionberger
D. S. Luce
C. M. Lydon
D. L. Lynch
T. F. P. Lyons
Charles Malone
F. P. McCarthy
R. T. Monroe
F. J. Moran
Hyman Morrison
M. W. O'Connell
H. C. Petterson
S. A. Robins
S. M. Saltz
D. D. Scannell
J. A. Seth
Kathleyne S. Snow
J. W. Spellman
J. P. Treanor, Jr.
W. J. Walton
N. A. Welch

NORFOLK SOUTH
C. S. Adams
F. A. Bartlett
H. H. A. Blyth
F. W. Crawford
D. B. Reardon
H. A. Robinson

PLYMOUTH
J. E. Brady
Charles Hammond
W. T. Hanson
C. D. McCann
G. A. Moore
W. H. Pulsifer

SUFFOLK
H. L. Albright
A. W. Allen
H. L. Blumgart
W. B. Breed
W. J. Brickley
W. E. Browne
C. S. Butler
G. C. Caner
E. M. Chapman
David Cheever
Pasquale Costanza
R. L. DeNormandie
G. B. Fenwick
Reginald Fitz
Maurice Fremont-Smith
Channing Frothingham
Joseph Garland
A. A. Hornor
C. S. Keefer
H. A. Kelly
R. I. Lee
C. C. Lund
H. C. Marble
W. J. Mixter
H. L. Musgrave
R. N. Nye
F. R. Ober
W. T. O'Halloran
J. P. O'Hare
L. E. Parkins
L. E. Phaneuf
W. H. Robey
R. M. Smith
E. F. Timmins
S. N. Vose
Shields Warren
Conrad Wesselhoeft
C. F. Wilinsky

WORCESTER
J. C. Austin
L. R. Bragg
P. H. Cook
G. A. Dix
L. M. Felton
E. R. Leib
W. F. Lynch
J. C. McCann
A. E. O'Connell
R. S. Perkins
J. J. Tegelberg
G. C. Tully
R. J. Ward
F. H. Washburn
R. P. Watkins

WORCESTER NORTH
E. A. Adams
J. J. Curley
C. B. Gay
B. P. Sweeney

*Deceased.

APPENDIX NO. 2

REPORT OF THE EXECUTIVE COMMITTEE

The Executive Committee has had five meetings since the stated meeting of the Council in February.

The February 25 and March 4 meetings represented hearings which were given to the Committee on By-Laws; present likewise at these hearings were the committees likely to be affected by proposed changes in the by-laws. One of these meetings was an all-day session and the other lasted for five hours.

The third meeting was held on April 15, 1942. The committee was in receipt of a communication from Dr. Hugh F. Hare, secretary of the New England Roentgen Ray Society, expressing the desire of that organization that radiology be divorced from the Section of Radiology and Physiotherapy and that a separate Section of Roentgenology be set up. The committee so recommended. The chairman of the Committee on Physical Therapy was informed of this action.

The meeting of May 6 was concerned with the organization of Massachusetts Medical Service.

At the stated meeting of the Council, February 4, 1942, the following recommendation of the Committee on Prepayment Medical-Care Costs Insurance was adopted: "That a special committee be appointed by the Executive Committee to select an executive director." (The reference is to a medical director of Massachusetts Medical Service.)

Dr. Peirce H. Leavitt, chairman of the committee appointed by Dr. Ober under this direction, reported that Dr. Edward L. Kickham, of Norfolk, was the unanimous choice of this committee for the position. Dr. Kickham is a resident of Brookline where he was born November 6, 1895. He enlisted in the armed forces of our country in May, 1917, as a private — interrupting his college course to do so. He was honorably discharged December, 1918, a lieutenant in the infantry. He was graduated from Boston College in 1919 and Tufts College Medical School in 1923. He interned at the Carney and New York Lying-In hospitals. He has practiced his profession in Boston since. He is a fellow of the American College of Surgeons and a diplomate of the American Board of Obstetrics and Gynecology. He is a member of the staffs of St. Elizabeth's and Carney hospitals. He is an instructor in gynecology at Tufts College Medical School and assistant surgeon at the New England Medical Center. He is a member of the Massachusetts Medical Society and has been a councilor to the body from the Norfolk District for several years. He holds membership in the American Medical Association and the New England Gynecological and Obstetrical and the Boston Obstetrical societies.

The choice of Dr. Kickham for this position was approved by the Executive Committee.

The Executive Committee, in the name of the Massachusetts Medical Society, approved the following Board of Directors of the proposed Massachusetts Medical Service Corporation:

Dr. James C. McCann
Dr. Samuel A. Robins
Dr. Charles E. Mongan
Dr. J. Harper Blaisdell
Dr. Frank R. Ober
Mr. Ernest Johnson, Building Trades Union, A.F.L.
Mr. Daniel Boyle, labor member, Massachusetts State Board of Arbitration — C.I.O. affiliations
Mr. J. H. Humphrey, personnel manager, Dennison Manufacturing Company, Framingham
Mr. Harold B. Leland, personnel manager, Hood Rubber Company, Watertown
Mr. Roswell Phelps, statistician, Massachusetts Department of Labor and Industries
Mr. P. A. O'Connell, president, E. T. Slattery Company, Boston
Mr. Oliver G. Pratt, director, Salem Hospital, Salem
Mr. James Y. Scott, president, Van Norman Machine Tool Company, Springfield
Mr. Philip Morgan, Morgan Construction Company, Worcester

Let me say for the further information of the Council that, at a meeting of the members of the proposed corporation, a petition for incorporation of Massachusetts Medical Service was signed by all present. Mr. E. L. Twomey, attorney, was elected clerk, and Dr. Charles S. Butler, treasurer, in addition to the directors listed above. Dr. Edward L. Kickham was named as the members' choice for the medical directorship of the Massachusetts Medical Service.

The Executive Committee met in emergency session on May 15, 1942, called by Dr. Ober at the request of Dr. Reginald Fitz, chairman of the Massachusetts Committee of the Procurement and Assignment Service. Dr. Fitz announced that he was shortly to attend a meeting of the Council on Medical Education and Hospitals of the American Medical Association and a meeting of the Association of Medical Colleges and that he intended to place before these bodies a proposition, which he addressed to the Executive Committee in the form of a question. The question was as follows:

> Would the Executive Committee of the Massachusetts Medical Society be willing to recommend to the Council on Medical Education and Hospitals of the American Medical Association, during the present emergency, that men, from unrecognized schools, who have spent four academic years of thirty-two weeks each in a school legally chartered to teach the practice of medicine, who have received a diploma as a doctor of medicine from such a school, who are licensed to practice medicine in a sovereign state, who have had a year's internship in a registered hospital (not necessarily one approved by the American Medical Association for intern training), and who are American citizens, be eligible for commission in the armed forces with the proviso that such men be declared available for this distinction by the local and state committees for procurement and assignment in the area where they reside and on the written recommendation of five doctors in such areas who are graduates of recognized schools?

In the discussion that followed, Dr. Fitz pointed to the present great need of the Army and Navy for young physicians. He said that this need was not being adequately met. He added that this was due, among other things, to the lack of eligibility for commissions of graduates of unapproved medical schools, the unwillingness of draft boards to induct physicians of any status into the Army and the bad effect which the consequent situation was having on the graduates of approved medical schools. He said that certain graduates of such approved schools were asking why they should go into the service, with all the sacrifice that such a course entailed, while graduates of unapproved schools remained at home.

The Executive Committee answered the question in the affirmative, thereby granting its approval to the proposition as submitted by Dr. Fitz.

MICHAEL A. TIGHE, *Secretary*

APPENDIX NO. 3

REPORT OF THE COMMITTEE ON MEMBERSHIP

The committee recommends:

1. That the following named two fellows be allowed to retire under the provisions of Chapter I, Section 5, of the by-laws:

Caines, Richard J. R., Fort Lauderdale, Florida, with remission of dues for 1941 and 1942
Gleason, Edward F., Hyannis, with remission of dues for 1942

2. That the following named five fellows be recommended for affiliate fellowship in the American Medical Association:

Grandison, Wilfred G., Charlestown
Holmes, May S., Orleans
Myrick, Hannah G., Dorchester
Pratt, Charles A., New Bedford
Wylie, Eugene C., Dorchester Centre

3. That the following named two fellows be allowed to resign under the provisions of Chapter VII, Section 4, of the by-laws:

Friedberg, I. H., Camp Blanding, Florida, with remission of dues for 1941 and 1942
Gall, Edward A., Cincinnati, Ohio, with remission of dues for 1942

4. That the dues of the following named two fellows be remitted under the provisions of Chapter I, Section 6, of the by-laws:

Donaldson, J. Frank, Salem, 1941 and 1942
Sawyer, Alpha R., Chestnut Hill, 1942

5. That the following named three fellows be allowed to change their membership from one district society to another without change of legal residence, under the provisions of Chapter III, Section 3, of the by-laws:

FROM MIDDLESEX EAST TO ESSEX NORTH

Miller, Wallace C., Winchester

FROM NORFOLK TO MIDDLESEX SOUTH

Weintraub, David, Brookline

FROM NORFOLK TO SUFFOLK

Quinby, William C., Brookline

6. That the following named seven fellows be recommended for readmission under the provisions of Chapter I, Section 10, of the by-laws:

Atkinson, Velma H., Foxboro
Ciani, A. Walter, Cambridge
Gosline, Harold I., Arlington Heights
Marcellino, Samuel E., Milton
McCready, L. T., Jamaica Plain
McLeod, Melvin S., Melrose
Taylor, Edward H., Swansea

7. That the Council rescind its action of February 4, 1942, whereby it deprived of fellowship for nonpayment of dues George B. Coon, of Greystone Park, New Jersey. (The committee has recently learned that Dr. Coon died on January 18, 1941. Previous to that time he had been an esteemed fellow of the Society for many years.)

G. COLKET CANER, *Chairman*

APPENDIX NO. 4

REPORT OF THE COMMITTEE ON ETHICS AND DISCIPLINE

The major portion of the year's work of the Committee on Ethics and Discipline was reported on February 4, 1942, to the Council and will be found under Appendix No. 8 (page 434) in the March 12, 1942, issue of the *New England Journal of Medicine*.

Subsequent to that meeting the committee has held two full-day meetings, discussing and settling cases which fell into the different classes noted in our previous report.

The committee feels that a careful study of the *Code of Ethics* of the Massachusetts Medical Society and that of the American Medical Association by the fellows would lighten, to a considerable extent, the work now carried on by it.

WM. J. BRICKLEY
ALLEN G. RICE
FRED R. JOUETT
ARCHIBALD R. GARDNER
RALPH R. STRATTON, *Chairman*

APPENDIX NO. 5

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

Two regular meetings were held before the November and May censors' examination of candidates for admission to the Society, and the qualifications of the candidates from foreign medical schools and from unapproved domestic schools were studied. In the very great majority of cases the decisions were in agreement with those of the local boards of membership. Most of the disagreements were settled to the satisfaction of each committee. It is the committee's belief that the local boards are doing their work well, upholding the interest of the Society, as well as those of the candidates. It is also our feeling that most of the boards welcome a review of their decisions by a committee of the Society. Under the new by-laws, this work will henceforth be in charge of the Committee on Membership.

At the two meetings, 53 graduates of foreign medical schools were considered, of whom 31 (59 per cent) were accepted, as compared with 92 last year of whom 64 (69 per cent) were accepted. The prediction that the number of applicants from foreign schools would decrease has proved true so far. Also, 87 graduates of unapproved domestic medical schools were considered, of whom 49 (56 per cent) were accepted. This compares with 80 a year ago, of whom 27 (33 per cent) were accepted. There seems to be no change in the number of applicants from these schools, and in general, the local boards of membership found in their favor more often than they have done in the past. During the year only 130 graduates of approved schools applied, or 10 less than the number in the other two categories. Some of this falling off may be attributed to the claims of the armed forces on these men. However, the continued decrease, both in numbers and proportions, of graduates of Class A schools seeking membership in the Society is a source of real concern to the committee and merits serious study.

There is appended a list of medical schools approved by the committee.

ROBERT T. MONROE, *Chairman*

* * *

LIST OF MEDICAL SCHOOLS AND COLLEGES APPROVED BY THE COMMITTEE ON MEDICAL EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY

ARKANSAS

University of Arkansas School of Medicine, Little Rock.

CALIFORNIA

University of California Medical School, Berkeley, San Francisco.
College of Medical Evangelists, Loma Linda, Los Angeles.
University of Southern California School of Medicine, Los Angeles.
Stanford University School of Medicine, Stanford University, San Francisco.

COLORADO

University of Colorado School of Medicine, Denver.

CONNECTICUT

Yale University School of Medicine, New Haven.

DISTRICT OF COLUMBIA

Georgetown University School of Medicine, Washington.
George Washington University School of Medicine, Washington.
Howard University College of Medicine, Washington.

GEORGIA

Emory University School of Medicine, Atlanta.
University of Georgia School of Medicine, Augusta.

ILLINOIS

Loyola University School of Medicine, Chicago.
Northwestern University Medical School, Chicago.
Rush Medical College, University of Chicago, Chicago.
The School of Medicine of the Division of the Biological Sciences, University of Chicago, Chicago.
University of Illinois College of Medicine, Chicago.

INDIANA

Indiana University School of Medicine, Bloomington, Indianapolis.

IOWA

State University of Iowa College of Medicine, Iowa City.

KANSAS

University of Kansas School of Medicine, Lawrence, Kansas City.

KENTUCKY

University of Louisville School of Medicine, Louisville.

LOUISIANA

Louisiana State University School of Medicine, New Orleans.
Tulane University of Louisiana School of Medicine, New Orleans.

MARYLAND

Johns Hopkins University School of Medicine, Baltimore.
University of Maryland School of Medicine and College of Physicians and Surgeons, Baltimore.

MASSACHUSETTS

Boston University School of Medicine, Boston.
Harvard Medical School, Boston.
Tufts College Medical School, Boston.

MICHIGAN

University of Michigan Medical School, Ann Arbor.
Wayne University College of Medicine, Detroit.

MINNESOTA

University of Minnesota Medical School, Minneapolis.

MISSOURI

St. Louis University School of Medicine, St. Louis.
Washington University School of Medicine, St. Louis.

NEBRASKA

Creighton University School of Medicine, Omaha.
University of Nebraska College of Medicine, Omaha.

NEW YORK

Albany Medical College, Albany.
Long Island College of Medicine, Brooklyn.
University of Buffalo School of Medicine, Buffalo.
Columbia University College of Physicians and Surgeons, New York.
Cornell University Medical College, New York.
New York Medical College, Flower and Fifth Avenue Hospitals, New York.
New York University College of Medicine, New York.
University of Rochester School of Medicine and Dentistry, Rochester.
Syracuse University College of Medicine, Syracuse.

NORTH CAROLINA

Duke University School of Medicine, Durham.

OHIO

University of Cincinnati College of Medicine, Cincinnati.
Western Reserve University School of Medicine, Cleveland.
Ohio State University College of Medicine, Columbus.

OKLAHOMA

University of Oklahoma School of Medicine, Oklahoma City.

OREGON

University of Oregon Medical School, Portland.

PENNSYLVANIA

Hahnemann Medical College and Hospital of Philadelphia, Philadelphia.
Jefferson Medical College of Philadelphia, Philadelphia.
Temple University School of Medicine, Philadelphia.
University of Pennsylvania School of Medicine, Philadelphia.
Woman's Medical College of Pennsylvania, Philadelphia.
University of Pittsburgh School of Medicine, Pittsburgh.

SOUTH CAROLINA

Medical College of the State of South Carolina, Charleston.

TENNESSEE

University of Tennessee College of Medicine, Memphis.
Meharry Medical College, Nashville.
Vanderbilt University School of Medicine, Nashville.

TEXAS

Baylor University College of Medicine, Dallas.
University of Texas Faculty of Medicine, Galveston.

VERMONT

University of Vermont College of Medicine, Burlington.

VIRGINIA

University of Virginia Department of Medicine, Charlottesville.
Medical College of Virginia, Richmond.

WISCONSIN

University of Wisconsin Medical School, Madison.
Marquette University School of Medicine, Milwaukee.

CANADA

University of Alberta Faculty of Medicine, Edmonton, Alberta.
University of Manitoba Faculty of Medicine, Winnipeg, Manitoba.
Dalhousie University Faculty of Medicine, Halifax, Nova Scotia.
Queen's University Faculty of Medicine, Kingston, Ontario.
University of Western Ontario Medical School, London, Ontario.
University of Toronto Faculty of Medicine, Toronto, Ontario.
McGill University Faculty of Medicine, Montreal, Quebec.
University of Montreal Faculty of Medicine, Montreal, Quebec.
Laval University Faculty of Medicine, Quebec, Quebec.

APPENDIX NO. 6

Report of the Committee on State and National Legislation

Since the last report of this committee in the fall of 1941, there has been no session of the Massachusetts Legislature that has considered any bills of concern to this society. In the Capitol, the present emphasis is on the conduct of the war. There are many bills pending that so far have remained dormant. These bills concern health insurance, hospitalization, social security and medical care. There are also bills relative to the administration of public health. All these bills are being followed by the several interested bodies in Washington. After the present crisis, surely many of these bills will be revised and require much study and consideration.

Henry C. Marble, *Chairman*
Earle M. Chapman
Brainard F. Conley

APPENDIX NO. 7

Report of the Committee on Tax-Supported Medical Care

Experimental plans under joint management of local governmental administrators and local medical societies are in operation in several sections of the State. Neither party to the arrangements has a monopoly on statesmanship. Progress is being made, however, and we are realistic enough to know that it is one thing to expound principles and another to have them adopted and practiced. We should emphasize again the statement that organized medicine has not yet done its best in the field of tax-supported medical care.

All the work of the committee has been done informally since our last report. We should like to hold ourselves available for surveying and counseling these experiments and so ask that you accept this as a report of progress and that any of you who are in contact with the field of tax-supported medical care lend your influence toward its improvement.

E. S. Bagnall, *Chairman*

APPENDIX NO. 8

Report of the Committee on Postpayment Medical-Care Costs Through Banks

Your committee has had several conferences with Mr. William M. McCarthy, vice-president of the National Shawmut Bank, and associates, and has arrived tentatively at a plan for low-cost monthly-payment financing of the doctor's bill. This plan is modified from one in use by the Dental Foundation of the Massachusetts Dental Society.

Bank experience shows the largest group of loans are to finance medical care. The legal limit of interest on installments in this state is 36 per cent. Studies of recent advertisements in the daily papers show one of the largest and most successful corporations charges about 30 per cent. The plan we have in mind is far below this cost — considerably less than one third in the $300 loan level.

We believe there are a large group of people who would welcome the chance to finance medical costs from $30 to $300 at a low carrying charge. We have agreed on a schedule of payments in accord with regulations of the Federal Reserve Bank of $5 a month minimum. The charges are 50 cents a month under $100, and 25 cents a month with 6 per cent on the unpaid balance on amounts over $100.

The doctor having established credit rating with the bank, the doctor's secretary or the doctor will have the patient fill out an application form, furnishing skeleton information on which the bank may judge the credit. If the application is accepted, the patient completes the note and thereupon the doctor receives up to 90 per cent of the face of the note, according to the credit rating of the doctor and patient. The remaining 10 per cent is paid when the note is paid up. The doctor endorses the note so he must exercise some judgment in extending the benefits of this plan to his patients. He has however nothing to lose except carrying charges, even if no payments are made on the note.

The doctor may choose between two plans — the "net" or the "discount." On the discount plan, the doctor assumes the carrying charges. On the net plan, the patient does.

The National Shawmut Bank was the first in this country to handle installment paper and has affiliations in Lawrence, Salem, Worcester, Springfield and New Bedford. They would sponsor extension of the plans to all parts of the State. It is obvious that installment financing of automobiles, radios and electric refrigerators is fairly well eliminated, for the present. The banks are ready for a new field to supplant these and are willing to take on medical-costs financing at a very favorable rate.

On May 7, 1942, a joint statement by the Comptroller of the Currency, the Federal Deposit Insurance Corporation, and the Federal Reserve Board said that their bank examiners hereafter will be instructed to encourage all banks to provide for the regular repayment of individual loans, especially by arranging periodic installment payments. This would change the usual bank practice of lending money on a single-payment basis. The statement said the joint action was taken in accordance "with that part of the President's special message to Congress of April 27, which urged the paying off of debts as a restraint upon rising living costs."

We recommend the adoption of this plan in principle, the details to be worked out by the Committee on Public Relations and initiated when completed.

E. S. Bagnall, *Chairman*

APPENDIX NO. 9

Report of the Committee on Postgraduate Instruction

During the academic year 1941–1942, the committee organized postgraduate extension courses of general subjects and a separate course in venereal disease. The latter was financed by the United States Public Health Service and the Massachusetts Department of Public Health, while a registration fee of five dollars was charged for the general course.

Interest in postgraduate study has met a great distraction — the war; twelve places did not have any course, while nine have continued with a reduced enrollment. The attendance record for the last three years is as follows:

District	Place	1940	1941	1942
Barnstable	Hyannis	23	22	No course
Berkshire	Pittsfield	50	50	36
Bristol North	Taunton	20	18	No course
Bristol South	Fall River	22	42	33
	New Bedford	34	42	18
Essex North	Lawrence	52	40	No course
Essex South	Salem	59	54	No course
Franklin	Greenfield	47	34	No course
Hampden	Holyoke	40	18	No course
	Springfield	100	38	25
Hampshire	Northampton	32	33	No course
Middlesex East	Melrose	54	40	17
Middlesex North	Lowell	25	32	No course
Middlesex South	Cambridge	80	25	No course
Norfolk	Norwood	26	32	30
Norfolk South	Quincy	20	25	12
Plymouth	Brockton	27	23	No course
Suffolk	Boston	172	95	No course
Worcester	Milford	30	30	25
	Worcester	45	No course	No course
Worcester North	Fitchburg	26	25	25
Totals		984	718	221

The faculty have rendered excellent service and have been universally commended for their very helpful instruction.

At the present time, the committee has not made definite plans for next season and will be guided by the de-

sites of the districts and the military educational needs as they may affect the medical profession.

On May 12, 1942, the Executive Committee and Program Committee of the New England Postgraduate Assembly voted to postpone the assembly for the duration. This vote was almost unanimous among the New England state medical societies.

The committee announces that the Clinical Congress of the Connecticut State Medical Society will be held next September; further announcement of this event will be made in the *New England Journal of Medicine*.

At the present time the committee is studying the problems of postgraduate instruction in the field of industrial medicine, particularly as it relates to the defense industries. Announcement concerning this phase of postgraduate instruction will be made in the *New England Journal of Medicine* later in the summer.

REGINALD FITZ, *Chairman*
LEROY E. PARKINS, *Secretary*

APPENDIX NO. 10

REPORT OF THE COMMITTEE ON PHYSICAL THERAPY

It should be of interest to the members of the Council to realize that in Greater Boston we have four excellent schools for training physical therapy technicians, which fulfill every requirement of the American Medical Association. We also have, however, several other schools operated largely from a commercial viewpoint; these provide the pupil with a training so superficial as to be utterly inadequate for a successful career. Cases have come to our attention where the high-school teacher who is designated as "vocational adviser" has, probably entirely from ignorance of the situation, suggested one of these schools to the inquiring high-school senior because of its shorter course. These commercial schools have few or no clinical opportunities and are extremely limited in the quality of their instruction. Their courses are so short that they average but eight months or from three to five half-days each week; this is not one quarter the time required to grasp adequately the basic fundamentals necessary for the work of a physical therapy technician.

Many teachers acting as vocational advisers are too busy to investigate the various schools in the many types of work open to the graduating pupils. Consequently, the easiest procedure is to hand out an advertising pamphlet that has been sent from these schools, and with it comes to the pupil the implied recommendation of the adviser.

In an attempt to correct this situation your committee has been of practical help by disseminating information concerning the teaching of physical therapy to the Hospital Council of Boston, to occasional private inquirers, to high-school teachers and vocational advisers, and to the State Office of Secondary Education. An article pertaining to the selection of schools for the training of physical therapy technicians is to be printed in *Massachusetts Teacher*, a publication that reaches 27,000 teachers. A small but increasing number of requests are being received by your committee for advice and information pertaining to this phase of our work. This recent undertaking has already accomplished encouraging results.

There are probably a goodly number of councilors who are vitally interested in the schools of their cities. The committee urges that, in justice to our high-school graduates, you lend your influence to this problem; this may be done by conferring with the adviser in your high school, or by seeing that she gets in touch with the office of the Massachusetts Medical Society or with this committee, for desired information concerning curriculum, clinical facilities and instruction of these various schools for training physical therapy technicians.

FRANKLIN P. LOWRY, *Chairman*
GEORGE R. MINOT
ROBERT B. OSGOOD

APPENDIX NO. 11

REPORT OF THE COMMITTEE TO CONSIDER EXPERT TESTIMONY

Your committee was appointed at the Springfield meeting of the Society in 1936 to consider certain matters included in the report of the Committee on Ethics and Discipline. Since the work of your committee is still incomplete, this must be a report of progress only.

Many difficulties in the work of the committee have been encountered. Many conferences have, however, been held between the chairman and other members. A long illness of the chairman in 1939 further delayed the work, but since the middle of 1940, much groundwork has been laid and considerable accomplished.

It was early appreciated by your committee that to function and accomplish the purpose of its being it would be desirable and necessary to have the help of the Massachusetts Bar Association, as well as that of members of the General Court, especially those members connected with legal affairs.

The president of the Massachusetts Bar Association from 1940 to 1941 was most co-operative. Unfortunately, he left this office before he was able to appoint a committee from the Massachusetts Bar Association to work with our committee. The president of the Bar Association at the present time also is much interested, and in December, 1941, appointed the late Harold P. Small, of Springfield, to serve as chairman of a committee and to select the other members of the committee. Unfortunately, Mr. Small died very suddenly on January 1, and another delay has ensued.

Mr. Tycho Peterson, a member of the State Senate, has also been most helpful and will continue to be. Mr. Peterson, in his many conferences with the chairman, stressed the fact that the work of your committee is of necessity of considerable delicacy, that it should be carried out slowly and with the assistance of a committee from the Massachusetts Bar Association, as mentioned earlier.

As matters stand at present, your committee has been forced to hold in abeyance any further deliberations, subject to the appointment of a committee from the Massachusetts Bar Association or from some other legal society in the State.

GEORGE LEONARD SCHADT, *Chairman*
DAVID CHEEVER
JAMES J. GOODWIN
HENRY C. MARBLE
FRANCIS P. MCCARTHY

APPENDIX NO. 12

REPORT OF COMMITTEE TO EQUALIZE DISTRIBUTION AMONG PHYSICIANS OF MEDICAL SERVICE TO W.P.A. EMPLOYEES

As was expected the W.P.A. roll has continued to decrease in numbers. Last month there were approximately 30,000 workmen, and the lowest accident case record—

namely, 327. About 80 per cent of the above 30,000 are engaged in defense work. Accident cases among this group are, for the most part, handled by medical officers in the Army or Navy.

With the situation as described, the work of the committee is less. We have not been asked to adjust any controversies between physicians and the W.P.A. office since our last report. One matter that was in conflict for a short time was never formally submitted to us for conference. It was decided by the State Compensation Officer, and the complaining physician did not seek our aid.

In numerous cases, not including the one just referred to, the State Compensation Officer states that the mention of a committee representing the Massachusetts Medical Society in these matters seems to work like a charm in adjusting unreasonable charges and claims.

Another way in which the committee seemed to be of help was in the matter of the $1000 top referred to in our report of last September. It was agreed by the committee and the W.P.A. office that a doctor who had received that amount in fees was to be removed from the list of available physicians. As you know, this plan was put into operation, and no serious complaints resulted. Then the W.P.A. office changed this plan in some places on the ground that in those communities there were not enough well-qualified physicians left to do the work. The committee assured the W.P.A. office that such a community would be a rare exception, and the $1000 top was again made state wide.

In spite of the marked decrease in W.P.A. accident cases for the local physician to care for, it is suggested that this committee continue to function. In the event that it does continue, it is proposed to make our inspections at the W.P.A. office only every other month instead of each month as heretofore.

GUY L. RICHARDSON, *Chairman*
WILLIAM E. BROWNE
LUCIEN R. CHAPUT

APPENDIX NO. 13

REPORT OF THE COMMITTEE ON REHABILITATION

Since the report submitted by this committee to the Council on February 4, 1942, the following more or less important matters have received attention. One or two of these may require brief discussion at this meeting. Subsequent to the Council Meeting on February 4, your committee communicated with General Lewis B. Hershey, director of the Selective Service System, Washington, D. C., and Brigadier General Edgar C. Erickson, director of the Selective Service System for the Commonwealth of Massachusetts, indicating the desire and readiness of the Massachusetts Medical Society to be of help to each of these selective-service departments. Appreciation of our willingness to help in the national effort was expressed by letter from General Hershey and via telephone from General Erickson. A representative of your committee met with Colonel Smith and Colonel Currier at the Massachusetts Selective Service Headquarters, 38 Chauncy Street, on February 21. Plans for rehabilitation of rejected draftees under federal and state auspices were discussed at this meeting. But two states in the Union had, at that time, been officially authorized by the federal government to proceed with this work of rehabilitation.

The chairman of the Health Executive Committee of the Massachusetts Committee on Public Safety informed Colonels Smith and Currier of the considerable amount of work which his committee had accomplished. A communication was received from the chairman of this committee, which, in substance, asked the approval of the Massachusetts Medical Society on their entire program. We felt such approval could not be given as we did not know their entire program and, thus far, have been unable to learn what that program is. We have been told a large number of rehabilitation agents throughout the State have done this and that amount of work. We have communicated by registered letter twice with the Health Committee of the Committee on Public Safety in an attempt to get the names and addresses of these rehabilitation agents in order that the members of the Massachusetts Medical Society, when called upon to do so, might be of assistance to them. Thus far, we have never received any list of names.

Colonel Currier kindly accepted an invitation to discuss with your committee certain plans now in progress in this rehabilitation work. Various selective-service boards throughout the State and others have submitted names of physicians who would be willing to do this rehabilitation work and to be reasonably paid for same by the Federal Government. Colonel Currier is desirous of knowing at times something of the qualifications of various physicians who may be engaged in this work. Unless the Council offers some better way of co-operating with the Massachusetts Selective Service Headquarters, for the time being we have thought it advisable to have the president or the secretary of each district society throughout the State, when called on to do so by Colonel Currier or whoever may occupy his position in the Massachusetts Selective Service Headquarters, give such information as best he can concerning known qualifications of various physicians.

Just how much work of rehabilitation members of the Society may be called on to do is difficult to estimate. There may be relatively little — there may be a great deal. One at all conversant with problems in this matter may readily see how errors may occur, not in attempting to express approval or disapproval of physicians who might wish to engage in this work, but by merely, in good faith, setting forth a physician's qualifications as such may be known in the district in which he practices or lives.

A considerable number of names of physicians, if we are correctly informed, are already in Colonel Currier's office, and, concerning some of these right now, Colonel Currier is desirous of receiving information.

Time is of the essence in this matter. Will the Council at this meeting approve the action of the Committee on Rehabilitation in assuring those in charge at the Massachusetts Selective Service Headquarters of our co-operation throughout the various district societies and the Massachusetts Medical Society as a whole?

Two additional physicians have been asked to serve on this committee and have kindly accepted. These men are Dr. Ralph M. Chambers, superintendent of the Taunton State Hospital, and Dr. Arthur L. Watkins, director of physiotherapy at the Massachusetts General Hospital.

RALPH M. CHAMBERS
BENJAMIN F. ANDREWS
WILLIAM M. COLLINS
DAVID C. DOW
ARTHUR L. WATKINS
JAMES J. REGAN
WILLIAM E. BROWNE, *Chairman*

APPENDIX NO. 14

COMMUNITY NURSING COUNCIL OF BOSTON
80 FEDERAL STREET
BOSTON, MASSACHUSETTS

May 12, 1942

Mr. Frederick Ayer, Chairman
The Approving Authority for Schools
for Nurses and Schools for Attendants
State House
Boston, Mass.

Dear Mr. Ayer:

At a meeting of the Board of Directors of the Community Nursing Council of Boston on Thursday, May 7, 1942, the Board of Directors approved the following recommendations regarding the training of attendant nurses:

Believing that there is need to prepare young women to aid in the care of the sick, especially in the care of patients in the home who do not require the service of a registered nurse and in helping to meet the present emergency in hospitals when so many registered nurses will be needed for military service, it is recommended:

(1) That publicity be given to the fact that young women may help in this present emergency by enrolling in a good school for the preparation of household attendants or nursing attendants, and that in such publicity the patriotic motive be stressed.

(2) That these young women be encouraged only to enter schools which meet the minimum requirements as set forth by the Approving Authority, which will qualify them to practice as licensed attendants in this Commonwealth.

(3) That the instruction of these young women include actual practice in the care of the home, including the planning and preparation of meals, and that such instruction be given in a "practice house" where the conditions approximate those of a home.

(4) That the establishment of a central school for attendants in which the preliminary training in the care of the household and the fundamental classroom teaching may be given, the students then going to selected hospitals for instruction in bedside nursing, is a sound and economical procedure; since the various hospitals involved would not have to duplicate teachers, teaching equipment or establish "practice houses."

(5) That consideration be given to the establishment of central schools in various parts of the Commonwealth as needed.

(6) That the Approving Authority be asked to issue as soon as possible a list of the schools for attendance which meets its minimum standards.

The Board of Directors also approved the following reasons as to why it is unwise to train attendant nurses and graduate nurses in the same hospital:

(*a*) There will be a tendency to place the emphasis on one group or the other.

(*b*) It will be difficult to make the attendant group satisfied in a situation where they may not share in the educational activities of student nurses, and since objectives in the training of these two groups of young women are not identical, a procedure in which they shared these activities would be unsound.

(*c*) Since some of the same clinical experience must be given to beginning student nurses and to student attendants if the schools are using their facilities for the training of nurses to the fullest capacity — as they have been requested by the Federal Government — the training of student attendants in the same institutions would necessarily mean a reduction of the number of student nurses or inadequate experience for student attendants and lead to abuses in their training.

(*d*) If student attendants and student nurses are trained in the same hospital, since the public does not differentiate regarding nurse training, attendants can easily plagiarize and lead the public to believe they are graduate nurses.

The Board of Directors of the Community Nursing Council also voted that this action be forwarded to the Approving Authority and to the State Board of Registration of Nurses.

Sincerely yours,
CARRIE M. HALL, *President*

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT

TRACY B. MALLORY, M.D., *Editor*

CASE 28261

PRESENTATION OF CASE

A forty-nine-year-old millworker was admitted to the hospital because of a disturbance of vision and occipital headaches.

For several years before entry, the patient had occasional difficulty in understanding things said to him. He attributed this to "poor hearing." Two years before entry, he began to have suboccipital and less often frontal or parietal headaches once or twice a week and, as a rule, lasting half a day. About a year before entry, the patient became aware of inability to see objects to the left of him. There was no disturbance of central vision. For about three months before entry, the headaches were accompanied by unsteadiness of gait; during the headaches, the patient staggered and tended to fall to the left. He became somewhat irritable, and seemed to be preoccupied with past events. Memory for recent events was impaired. He had to "stop and figure out" his previously habitual duties as a loom-tender in a mill. About this time, he began to regurgitate food and sour material immediately after swallowing. Once he vomited.

The family and past histories were irrelevant.

On admission, the patient appeared well developed and nourished, co-operative, fairly intelligent and well oriented. The heart, lungs and abdomen seemed normal. There was moderate scoliosis of the thoracic spine, with convexity to the right. There was partial left homonymous hemianopsia, the maculae being unaffected. The optic fundi were normal. The right pupil was slightly irregular and slightly smaller than the left; both reacted well to light and distance. Ocular movements were normal. There was no nystagmus. Tests of hearing showed questionable reduction in air conduction in the left ear. The gait was normal, with eyes open or closed. There were slight weakness and slightly increased muscular tone in the left arm. The reflexes were thought to be normal.

The temperature, pulse and respirations were normal. The blood pressure was not recorded.

Examinations of the blood and urine were negative. The blood Hinton reaction was negative. A lumbar puncture gave clear, colorless fluid under an initial pressure of 280 mm. of mercury. There were 3 lymphocytes per cu. mm.; the total protein was 216 mg. per 100 cc., the gold-sol curve was 0011221000, and the Wassermann reaction was negative.

An electroencephalogram was suggestive of a lesion on the right side near the midline in the parietal region. Roentgenograms of the upper gastrointestinal tract and of the chest were negative.

A ventriculogram showed incomplete filling of the right lateral ventricle, with displacement of both ventricles toward the left. A Mixter punch introduced into the right temporal lobe to a depth of 5 cm. gave the operator a gritty sensation, but examination of the biopsy specimen was negative.

On the nineteenth hospital day, an operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. WILDER PENFIELD*: Was the patient right handed, or left handed?

DR. CHARLES S. KUBIK: He was right handed.

DR. PENFIELD: Is it permissible to see the x-ray films of the skull?

DR. TRACY B. MALLORY: You are welcome to see them at any moment you like.

DR. PENFIELD: Is there a calcification corresponding to the gritty sensations reported?

DR. AUBREY O. HAMPTON: Here are some plain films taken before the encephalogram. The only calcium I see appears to be in the pineal gland, and if this is the pineal gland it is displaced toward the right and the ventricles toward the left. That is very unusual.

DR. PENFIELD: If one takes the history and physical examination, the patient had a left homonymous hemianopsia, and it is said that there the maculae were not involved. So far as our clinical experience goes, that means that the interruption of the visual fields occurred posterior to the temporal region. On the other hand, one would like to know how carefully the maculae were investigated. The man had evidence of increased intracranial pressure, and one assumes that he had a cerebral tumor. The encephalogram showed displacement from the right to the left, but it seems to me that this calcification is too low and too far anterior to be a pineal body, and one sees in the anteroposterior view calcification at this point that might correspond with that on the right side.

For a snap diagnosis, I should be driven to the conclusion that this man had an expanding lesion, that the calcification probably lay in the expanding

*Director, Montreal Neurological Institute, McGill University Faculty of Medicine; professor of neurosurgery, McGill University Faculty of Medicine, Montreal.

lesion, and that the expanding lesion was in the right posterior temporal region.

A PHYSICIAN: Temporal?

DR. PENFIELD: Temporal, because of the x-ray findings, which I am accepting. I assume that Dr. Hampton takes that as the proper position for the pineal gland, and that the calcification in the anteroposterior view is on the right side.

DR. HAMPTON: It is on the wrong side for the ventricular displacement.

DR. PENFIELD: Then, may we not assume that this lies in the expanding lesion itself and corresponds with the gritty material that the operator encountered — indicating calcification in the x-ray film in the posterior temporal region?

DR. HAMPTON: It is very small. I do not know. It would be very fortunate if they tapped it.

DR. PENFIELD: At all events, clinically the patient had a lesion that should have been very near the calcified object, and this localization probably gave him homonymous hemianopsia. We have run into a group, about half a dozen, of small calcified neoplasms that occurred in the temporal region, usually deep in the temporal lobe — I am not sure that one or two did not lie on the other side of the inferior horn — and were of a type of neoplasm that is hard to define histologically. We called them — one or two of them, at any rate — hemangioblastomas or hemangiomas of some type. They were not gliomas. They did have vessels in them. We treated one or two by x-ray for long periods. I am thinking of a patient treated by Dr. Charles A. Elsberg. The x-ray picture was similar to that in the case under discussion, although there was a little more calcification. We operated, and there was an area of atrophy and evidence of both atrophy and some expansion.

Do you want me to "stick my neck out"?

DR. MALLORY: That is the custom.

DR. PENFIELD: Then, in spite of the report of the hemianopsia, with the unaffected maculae, which would make it occipital, I assume that this man had a neoplasm in the posterior temporal area, and that it might have been one of those tumors that are made up of many blood vessels that I do not know how to classify histologically.

DR. MALLORY: Would anyone like to ask Dr. Penfield any questions or suggest any alternative diagnoses?

A PHYSICIAN: What is your objection to meningioma?

DR. PENFIELD: A meningioma arising from the lesser wing of the sphenoid would have to be considered, but in our clinic meningioma is very rarely calcified, and if my assumption that this is neoplasm is correct, I should not consider a meningioma.

A PHYSICIAN: Would the total protein in the spinal fluid give you any inkling of the type of tumor?

DR. PENFIELD: I suppose that it suggests proximity of the tumor to the ventricle. I do not believe it indicates the nature of the tumor as a rule, although it might be that this was a neoplasm attached to the choroid plexus, with calcification in it.

A PHYSICIAN: There was considerable ataxia. How do you explain that?

DR. PENFIELD: I should explain it on the basis that the tumor might well have extended into the basal ganglion in some way. The patient had a pyramidal lesion involving the left side slightly. He had no true ataxia in the upper extremities with the eyes opened or closed.

DR. SAMUEL LOWIS: I have no additional information beyond what is available in the abstract.

In retrospect, it is my impression that the gritty sensation was not encountered when the needle was directed toward the temporal lobe. As I remember it, the gritty sensation was encountered when the right needle was directed in the usual position toward the posterior horn of the ventricle; no air was introduced into the right needle, but only into the left ventricle. The picture was satisfactory at that point, and there was no need for further study. There was no question that the gritty sensation was present, even though the biopsy at the time of the ventriculogram was negative, as was later brought out at the operation, when the same material was encountered. The position was not specifically temporal but perhaps seemed to be nearer the midline, and higher — parieto-occipital — according to the actual localization of the findings at operation.

DR. MALLORY: Will you continue and describe your findings at the craniotomy?

DR. LOWIS: I shall read the operative note:

> Under intratracheal ether anesthesia, a medium-sized temporo-occipital skin flap was turned down to within 2 cm. of the midline, with a correspondingly large bone flap under the same area. The dura was incised with the pedicle at the top, toward the front. The cortex appeared normal, but felt soft over the posterior area of the exposure. Probing was done here, and the tumor encountered at a depth of about 4 cm. At this point of the procedure, Dr. John S. Hodgson entered the operation and opened the cortex down to the tumor and took a biopsy. There was no bleeding. (It was accepted at this time that the tumor was a meningioma.) The dura was closed along the anterior margin, the posterior margin of the cortex being left uncovered. Then, while the posterior margin of the scalp flap was retracted, the bone was undercut as far as possible, both from that point and from the bone flap where it was to be apposed — an extensive bone defect being left immediately over the tumor. The dura also had a defect here.

The undercut bone area was drained, as was the incision in the temporal muscle, and the wound was closed in two layers with silk. The patient was given two transfusions. Our plan in doing the operation in this way was to allow the ventricular system to displace the tumor nearer to the cortex at the point where cerebral hernia is certain to occur. At a second stage in six to eight weeks, we shall re-elevate this area of scalp and expect to effect an easier removal of the tumor.

The intention was to allow the tumor to migrate more toward the surface for a second-stage removal.

Clinical Diagnosis

Parieto-occipital meningioma.

Dr. Penfield's Diagnosis

Brain tumor (?), hemangioblastoma, posterior temporal region.

Anatomical Diagnoses

Tuberculous meningitis.

Tuberculoma, posterior parietal region.

Pathological Discussion

Dr. Mallory: The first attempt at a punch biopsy provided nothing from which a diagnosis could be made, but at the time of the craniotomy a second biopsy showed the characteristic wall of a tuberculoma, I think considerably to everybody's surprise. The patient then did very well for a long period, and it was three years before he began to develop serious symptoms of a different nature. He came in on the last occasion with a frank meningitis, and died in a comparatively brief period so that we have the findings of the autopsy, which will give us a little better check on the location of the lesion.

Dr. Kubik, will you tell us what the autopsy showed?

Dr. Kubik: There was a tuberculous meningitis. In the right posterior parietal and occipital region, above and lateral to the posterior horn of the ventricle, was a tuberculoma, from 2 to 3 cm. in diameter. This consisted of caseous material surrounded by a dense, fibrous capsule. Near it was a similar, smaller tuberculoma.

Dr. Mallory: Are there any other questions?

Dr. Paul Bucy: I should like to ask Dr. Lowis whether or not, when they found that this was a tuberculoma and in this location, an amputation of the occipital lobe might not have been considered.

Dr. Lowis: A second operation was considered, but the more conservative point of view prevailed. The patient made a surprisingly uneventful recovery. He was watched from the point of view of curiosity rather than from that of doing more about it.

Dr. Kubik: In another patient, operated on in 1931, there was a mass, the size of a small hen's egg, in the parietal region. This differed from the case under discussion in that the lesion was fibrous and contained numerous small caseous foci. The patient is still alive, eleven years later.

A Physician: Was there any tuberculous focus elsewhere in the body?

Dr. Mallory: At autopsy, no active tuberculosis was found outside the central nervous system. Even the lungs were entirely normal.

A Physician: How do you explain the origin of the lesion?

Dr. Mallory: I have little doubt that there was originally a pulmonary tuberculous infection. I think, if the lungs had been examined with rigorous technic for Ghon's tubercle, we should have found it.

A Physician: Were no tubercle bacilli found?

Dr. Mallory: Yes; they were found in the spinal fluid on the last admission.

CASE 28262

Presentation of Case*

An eight-year-old boy was admitted to the hospital because of sudden progressive "fatness."

The patient was essentially well until three weeks before entry, when he was said to have "fallen into a river" and to have wet his legs. Two weeks before admission, he claimed to have had a "hard head cold," and at approximately the same time his family noted that he was "getting fat." The exact sequence of events was not entirely clear. The "fatness" was steadily progressive in severity, and during the week prior to entry the appetite became poor and he vomited three times, but presented no other signs or symptoms of disease, either constitutional or referable to any of his symptoms. On the day before entry, his family physician examined the urine and advised admission to the hospital.

The patient had had the usual childhood diseases, and in addition had had a mastoiditis and right mastoidectomy and a depressed skull fracture, without unconsciousness, six months before entry. He had not had diphtheria or scarlet fever.

The family history was irrelevant.

Physical examination on admission revealed a pale, markedly edematous boy in no acute distress. The skin was dry, with keratinizing plugs in many of the hair follicles and desquamating scaly regions over the back. A small depressed area could be palpated in the left parietal bone. The eyes, including the fundi, were normal. A right mastoidectomy scar and some thickening and retraction of the left eardrum were noted. There was puffiness

*This case is presented through the courtesy of the Children's Hospital, Boston.

of the face and eyelids, and the breath was uriniferous. Minimal dullness and diminution of breath sounds were noted at both lung bases. Otherwise, the lung fields were clear. The heart was described as possibly enlarged slightly to the left. An apical systolic murmur was present, which one observer described as soft and blowing, and another as loud and rough, accompanied by a thrill and transmitted to the base and left axilla. The second observer also described a split mitral second sound. The abdomen was slightly distended, but there were no palpable masses or organs, and no shifting dullness or fluid wave could be made out. The genitalia, extremities and sacral regions were edematous.

The temperature was 98°F., the pulse 88, and the respirations 20. The blood pressure was 135 systolic, 110 diastolic.

Examination of the blood showed a red-cell count of 2,500,000 with 65 per cent hemoglobin, and a white-cell count of 6800 with a normal differential. The urine was cloudy yellow and acid, with a specific gravity of 1.010 and a trace of albumin. It contained 0 to 5 red cells, 0 to 15 white cells, and 1 to 20 granular casts per high-power field. A blood Hinton reaction was negative, as was a tuberculin reaction in a dilution of 1:1000. The serum protein was 3.7 gm. and the nonprotein nitrogen 101 mg. per 100 cc. A throat culture grew out a few colonies of beta hemolytic streptococci and a moderate number of colonies each of pneumococci, *Haemophilus influenzae* and yellow staphylococci.

A roentgenogram of the chest showed enlargement of the heart both to the right and to the left, the total cardiac diameter being 12.1 cm., compared to a total internal diameter of the chest of 20.1 cm. There were also moderate pulmonary congestion and small bilateral pleural effusions. Films of the paranasal sinuses showed moderate irregular thickening of the mucous membranes lining the ethmoid and maxillar sinuses.

The patient was treated with magnesium sulfate orally and parenterally, transfused, and placed on limited fluids and a low-salt, high-protein diet. This resulted in improvement of the edema, but the blood pressure remained about 140 systolic, 100 diastolic. The urine continued to show red cells, white cells, abundant granular and cellular casts, and a trace to a large trace of albumin. A urea-clearance test on the third hospital day showed 6 per cent of normal function. On the sixth hospital day, the nonprotein nitrogen was 133 mg. per 100 cc. On the eighth day, the patient complained of severe sore throat and some cough. He was nauseated and somewhat orthopneic. The temperature was 100°F., and the pulse rapid and weak, with a pulse deficit. The blood pressure rose to 170 systolic, 120 diastolic. The heart action was rapid, with poor sounds and a gallop rhythm. There was enlargement of the liver, and rales were present over both lung bases. An electrocardiogram showed slight left-axis deviation and suppression of T_2. The patient was treated with morphine, and rapid digitalization was attempted; however, the pulmonary edema increased in severity, and the pulse became irregular and thready. An electrocardiogram showed a slight prolongation of the PR interval. Terminally, Cheyne-Stokes respirations developed. The patient died on the ninth hospital day, approximately three weeks after the onset of his illness.

Differential Diagnosis

Dr. Allan M. Butler: I should like to remark on a few points in the description of this case. "The skin was dry, with keratinizing plugs in many of the hair follicles and desquamating scaly regions over the back." Such findings are present with a vitamin A or C deficiency but hardly ever in an essentially healthy boy of eight years of age. One can have scaly desquamation, perhaps, following scarlet fever.

"The abdomen was slightly distended, but there were no palpable masses or organs, and no shifting dullness or fluid wave could be made out." One wonders whether the edema masked a slightly enlarged liver. On the other hand one could have these signs of cardiac failure in a patient with acute nephritis without much in the way of enlargement of the liver, since the failure is usually left sided.

"A roentgenogram of the chest showed enlargement of the heart both to the right and to the left." Such cardiac enlargement is common in acute hemorrhagic nephritis.

"There were also moderate pulmonary congestion and small bilateral pleural effusions"—I suppose because of congestive failure.

"An electrocardiogram showed slight left-axis deviation and suppression of T_2." In other words, there was some myocardial involvement.

Much of this history is typical of the history of an acute initial hemorrhagic nephritis. The patient had an upper respiratory infection two weeks preceding the onset of the present illness. The gain in weight, of course, was due to edema. He had anorexia and vomiting, and the urine contained albumin, red cells and casts. He had hypertension and the signs of myocardial failure. On the other hand, certain facts and lack of information in the history make one wonder whether the autopsy will reveal either some evidence of an antecedent cardiac lesion, a previous nephritis,

which was latent before the present exacerbation, a congenital anomaly, which resulted in diminished renal function, or a previous pyelonephritis, which likewise caused diminished renal reserve. The lack of information pertains to the statement that the patient was essentially well. One wonders whether he was fairly well or really a robust, healthy boy of eight. Then we find that he entered the hospital two weeks after an upper respiratory infection, with pallor and marked edema. Usually, a patient with acute initial hemorrhagic nephritis does not have marked pallor and is not markedly edematous. On the other hand, it is possible to have an acute hemorrhagic nephritis that is accompanied by marked degenerative changes throughout the entire parenchyma of the kidney. Edema then appears very rapidly, and may become as extensive as that seen in nephrosis. Moreover, the patient had a uriniferous breath, which is very rare in acute initial hemorrhagic nephritis.

I should pass over the question of the murmur in the heart as being no evidence of endocarditis or congenital heart disease and say that it was a systolic murmur due to dilatation of the heart such as is observed so frequently in acute hemorrhagic nephritis. The red-cell count of 2,500,000 and the hemoglobin of 65 per cent confirm the pallor and are rather unusual in acute initial hemorrhagic nephritis unless accompanied by very extensive degenerative changes throughout the tubules and general parenchyma of the kidneys — in other words, a very severe fulminating type of hemorrhagic nephritis, which is unusual in children. Next, we notice a specific gravity of 1.010, which in a boy with acute initial hemorrhagic nephritis in the stage of edema is very rare because such patients almost always have oliguria, and the urine concentration is almost always quite good. Oliguria and good specific gravity of the urine are characteristic of initial hemorrhagic nephritis, and this boy seems to have had neither.

In considering the urine sediment, I should like to know whether it was centrifuged, because I know that at the Children's Hospital half the people examine uncentrifuged and half centrifuged sediments and the records rarely show which was done — 0 to 5 red cells if uncentrifuged are a lot; if centrifuged, they are not. There were 1 to 15 white cells. White cells predominate over the red cells; this suggests what Addis and Oliver* call a "degenerative element." Granular casts and epithelial cells are not mentioned.

DR. TRACY B. MALLORY: The report on one centrifuged specimen says that there were 15 to 30 red blood cells and 3 to 5 white blood cells per high-power field; it was also reported to be "loaded" with granular casts and some white blood cell casts, but there is no mention of epithelial cells.

DR. BUTLER: Usually, with a marked element of degenerative changes, there are epithelial cells in the urinary sediment. No mention is made of a urine culture, and sometimes one is surprised to find that there is infection along with what appears to be uncomplicated acute hemorrhagic nephritis.

The serum protein was 3.7 gm. per 100 cc. In the ordinary case of acute initial hemorrhagic nephritis, the serum protein may come down, but usually not to 3.7 gm. in two weeks. If it does, there is usually a marked involvement of the entire kidney. We have such a boy on the ward at the present time, with a serum protein around 3 gm., whose hemorrhagic nephritis from the history is of apparently short duration, and he puzzled us for that reason.

The nonprotein nitrogen was 101 mg. per 100 cc. That is very high for a patient with an initial acute hemorrhagic nephritis and a urine with a specific gravity of 1.010. Usually, such a specific gravity and urine volume suggest that the oliguric stage has been passed, and the nonprotein nitrogen would be on the way down and not so high as 100 mg. Certainly, it is too high for a patient with nephrosis.

On the third hospital day, — that is, a week or more after the onset of the anorexia and nausea and the finding of abnormal urine sediment by the family physician, — the urea clearance was 6 per cent, and that again is very unusual in a patient with simple initial hemorrhagic nephritis and again indicates to me that there was either some abnormality in the kidney existing at the onset of this acute hemorrhagic nephritis or a very extensive nephritis extending far beyond the glomerular involvement of an ordinary hemorrhagic nephritis. On the sixth day, the nonprotein nitrogen was 133 mg. — still going up.

In summary, I should think that this patient had an acute hemorrhagic nephritis, the cause of death being myocardial failure. Autopsy will show a dilated heart; I do not know whether it will be very hypertrophied or not. Usually, in patients who die of myocardial failure during an acute hemorrhagic nephritis, the pathologists find relatively little at examination. This suggests that the myocardial failure is due to a vascular disturbance within the myocardium, similar to that affecting most of the other organs of the body in acute hemorrhagic nephritis. I do not know whether we shall find that this was one of those very diffuse, rapidly progressing types of acute

*Addis, T., and Oliver, J. *The Renal Lesion in Bright's Disease.* 628 pp. New York: Paul B. Hoeber, Inc., 1931.

initial glomerular nephritis with degenerative changes involving all the parenchyma of the kidney as well as the glomeruli, or whether we shall find that there existed a congenital anomaly, an old renal infection with scarring, or an unnoticed nephritis previous to this acute hemorrhagic nephritis. I believe that the kidneys were large and edematous. With the anemia and with low serum protein, I think that they perhaps were not so red as the usual red swollen kidneys of glomerulonephritis.

Clinical Diagnoses

Acute hemorrhagic nephritis.
Terminal heart failure.

Dr. Butler's Diagnoses

Hemorrhagic nephritis.

Cardiac dilatation.

Hypertension.

Myocardial failure, with congestion characteristic of right-sided and left-sided cardiac failure.

Either pre-existing congenital anomaly or infection of urinary tract, pre-existing nephritis or superimposed degenerative changes involving all elements of renal parenchyma.

Anatomical Diagnoses

Acute and chronic glomerulonephritis, with degenerative vascular lesions in kidneys, terminal.

Anasarca.

Cardiac hypertrophy, with terminal congestive failure.

Congenital incomplete defect of interventricular septum.

Tracheobronchitis and bronchopneumonia.

Pathological Discussion

Dr. Sidney Farber*: The clinical diagnoses were acute hemorrhagic nephritis and terminal cardiac failure. At post-mortem examination, we found anasarca, with edema of the periphery, fairly well-marked ascites, marked pleural effusion and pericardial effusion. There was terminal congestive failure, with pulmonary edema and marked congestion of the liver and the abdominal viscera. The kidneys were somewhat enlarged, — about 25 per cent above weight, — red and rather congested. Some of the redness disappeared after standing. The parenchyma was more yellow than appeared at first glance. There was a diffuse glomerulonephritis perfectly consistent with what one would expect from the history. There were two other findings: glomerular lesions that must have gone back at least a year and were diffuse and not too numerous, but were easily found throughout both kidneys; and the blood vessels showed fibrin degeneration of the walls, particularly in the afferent arterioles, and in the glomerular loops.

The heart was almost twice the normal weight, and there was, as Dr. Butler indicated, very little evidence of cardiac inflammation. There was some fatty degeneration of the myocardium, as is sometimes found in cases of this kind, and a good deal of edema of the myocardium. I neglected to mention that, in addition to the pulmonary edema and congestion, there was a very important tracheobronchitis, with destructive lesions in the bronchioles.

The brain was considerably increased in weight, with a definite pressure cone at the base. The heart showed, in addition to the findings already described, a congenital malformation. It is the first of its kind that I have had the opportunity to see. Here, at the base of the aortic valve in the region of the undefended space where the interventricular septal defect is so often found, was an incomplete defect of the septum with no actual communication between the left and right sides of the heart. We have an adequate basis for a murmur, then, if one was actually heard.

In summary, this was a case of acute glomerulonephritis, with evidence of older glomerulonephritis that must have gone back at least a year. In the kidneys, there was also evidence of acute degenerative lesions in the arterioles and glomerular capillaries, which, for want of a better explanation, I should associate with the hypertension. The other findings were secondary to the kidney disease.

*Assistant professor of pathology, Harvard Medical School; pathologist, Children's Hospital

The New England
Journal of Medicine

Formerly
The Boston Medical and Surgical Journal

Established in 1828

Owned by the Massachusetts Medical Society and Published under the Jurisdiction of the Committee on Publications

Official Organ of
The Massachusetts Medical Society
and
The New Hampshire Medical Society

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Subscription Terms: $6.00 per year in advance, postage paid, for the United States (medical students, $3.50 per year); Canada, $7.04 per year, Boston funds; $8.52 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Friday.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to the *New England Journal of Medicine*, 8 Fenway, Boston, Massachusetts.

MATERNAL MORTALITY

Ten years ago, the appallingly high maternal mortality in the United States was a national disgrace, and there were insistent demands from both the laity and the medical profession that something be done about it. Now it begins to look as if something had been accomplished. In 1939, the United States had a maternal mortality of 4.0 per 1000 live births — the lowest recorded in this country; in 1930, the rate was 6.7. In 1933, the rate in Massachusetts was 6.7, and it has dropped every year but one since then, to a level of 2.8 in 1940.

Many factors have combined to produce this lowering of maternal mortality. Doubtless, one of the most important has been the extension and improvement of state and local public services for maternal health, made possible by the provisions of the Social Security Act. The American Committee on Maternal Welfare, Incorporated, with its component organizations, and the state and local maternal-welfare committees have done extremely valuable work.

One of the best examples of what a local committee can accomplish is furnished by the recently published report of the Committee on Maternal Welfare of the Philadelphia County Medical Society.* For ten years, this committee has worked with patience and intelligence to educate physicians, hospital administrators and the laity. It began with a critical study of maternal deaths and subsequently extended the study to include stillbirths and neonatal deaths. It early perceived the need for supervision of the work of courtesy-staff members and secured the adoption by most hospitals of uniform regulations governing such work. It formulated and adopted a standard governing the admission of toxic patients for hospital treatment. It has induced nearly half the hospitals to provide class instruction in the essentials of good prenatal care and has even provided a series of talks for prospective fathers. It has a subcommittee working on the problem of securing uniformity in obstetric hospital records and in reports of obstetric results. Most significant of all, perhaps, it has induced nearly all the Philadelphia hospitals with maternity departments to hold regular staff conferences, to which courtesy members are invited, for the open discussion of maternal deaths, stillbirths and neonatal deaths. All this has resulted in a lowering of the maternal mortality rate in Philadelphia from 7.3 and 7.5 per 1000 live births in 1931 and 1932, respectively, to 2.4 in 1940.

It is instructive to calculate the diminution in the total number of deaths that results in this lowering of the mortality rate. From 1932 to 1940, inclusive, there were 1263 obstetric deaths in Philadelphia. Had the maternal mortality rate

*Maternal mortality: Philadelphia, 1931-1940. Report of the Committee on Maternal Welfare, Philadelphia County Medical Society. *Weekly Roster and Medical Digest* (November 22, 1941).

remained at the 1932 level, 7.5, the total deaths in the ensuing nine years would have been 2037. This is a significant and gratifying drop in maternal mortality, and the Committee on Maternal Welfare in Philadelphia deserves a large share of the credit for it.

CASEY WOOD (1856—1942) AND AMERICAN MEDICINE

THE death of Casey A. Wood, in California, January 26, 1942, brings to an end one of the most remarkable and indeed unique careers in American medicine. Trained on the Continent and in England as an ophthalmologist, Wood became one of the best known students of diseases of the eye in this country. From 1890, when he first went to Chicago to practice, until he retired in 1917, his name was probably more familiar to both ophthalmologists and physicians in general than that of any other man in his special field. He wrote books; edited systems and encyclopedias; served as editor of three successive journals between 1894 and 1914, the *Annals of Ophthalmology*, the *Ophthalmic Record* and the *American Journal of Ophthalmology*; and corresponded with practically every prominent man in his branch of medicine both in this country and abroad.

Wood began his life in Wellington, Ontario, Canada, November 21, 1856, the son of American parents. After an early training in English and French schools in Canada, he went to Bishop's College in Montreal where he received his M.D. in 1877. McGill University also granted him an M.D. in 1906 and made him LL.D. in 1921. Wood became a student at the New York Eye and Ear Infirmary in 1886 and then spent a number of years at the University of Berlin and in various London hospitals, "Moorfield," Middlesex and others. When he settled in Chicago in 1890 (his first book was published in Detroit in 1891), he was one of the best trained men in his profession in America. He soon rose in teaching positions to the professorship of ophthalmology in both Northwestern University and the University of Illinois. From 1917 to 1919, he served in the Medical Corps of the U. S. Army, ending his service on the staff of the Surgeon General in Washington as a Lt. Colonel, M.C., and was retired with the rank of Colonel in the Medical Reserve.

The historical side of medicine always interested Casey Wood. He began to collect books even before his Chicago days, became associated with Dr. Mortimer Frank, Dr. Arnold C. Klebs and other historically minded physicians and, in 1902, exhibited at the annual meeting of the American Medical Association examples of British and American ophthalmic literature, with the aid of Dr. Harry Friedenwald, of Baltimore, Dr. A. A. Hubbell, of Buffalo, and Dr. A. R. Baker, of Cleveland. The four men had enough books, privately owned, to make the unusual exhibit possible, and Wood wrote up the story in the November 8 and 15, 1902, issues of the *Journal of the American Medical Association*. From then on, hardly a day passed without some progress in his study of the history of ophthalmology. Numerous trips to Europe, three years in India and Ceylon and many trips to the West Indies served his purpose, and especially during the last few years, he was a constant seeker of manuscripts in European libraries, having digested all the printed books he could find on the subject. Making his headquarters in Rome, he sent out scouts in all directions, copying, photographing or collecting the intricate medieval handwritten material in Latin, Hebrew, Arabic and Greek. It was an exacting task, requiring a skilled mind, but Wood made himself as much at home in this scholarly field as he had in ophthalmology itself.

The present war dealt him a severe blow. When the writer of this note saw him in August, 1939, in Geneva, the forewarnings of conflict had already closed many libraries to him, and a distracted man looked out on a crumbling world. He was not immediately beaten, however, for he escaped to America to live in his native country, of which he was so fond, for the last two years of his life.

His most important historical work was the translation of *De Oculis* (Stanford University, 1929), by

Benevenutus Grassus, and he will long be remembered for his charming selection, with Dr. F. H. Garrison, of the poems in *A Physician's Anthology* (London, 1920).

Wood was also somewhat of a zoologist, and in his travels in India and Ceylon, and in British Guiana with William Beebe, he studied the ophthalmology of birds. When about sixty, he published his important book, *Fundus Oculi of Birds* (Chicago, 1917). After many years of labor, he compiled and edited *An Introduction to the Literature of Vertebrate Zoology* (London, 1931), based on the books in the various libraries at McGill University. A library, devoted to ornithology, he gave to McGill in honor of his wife.

Thus passes an American physician, a distinguished scholar, a friend to Canada and a man whose influence, widely felt in his time, will continue in the inspiration he gave so generously to others.

MEDICAL EPONYM

Von Pirquet Reaction

Clemens F. von Pirquet (1874-1929) described "Tuberkulindiagnose durch cutane Impfung [Tuberculin Diagnosis by Means of Cutaneous Inoculation]" before the Berlin Medical Society on May 8, 1907, and his remarks were reported in the *Berliner klinische Wochenschrift* (**44**:644, 1907). A portion of the translation follows:

> If a tuberculous child is inoculated with tuberculin, there appears at the site of the inoculation a small papule that is bright red at first, gradually becomes dark red, and fades out within a week. . . . Nearly all cases of clinical tuberculosis in children give a positive reaction. . . . With increasing age, the reaction becomes more and more frequent, so that among adults nearly all patients show this reaction.

R. W. B.

MASSACHUSETTS MEDICAL SOCIETY

COMMITTEE ON MATERNAL WELFARE

Case History: Acute inversion of the uterus resulting in fatal hemorrhage

A thirty-year-old woman in her second pregnancy, which had been entirely uncomplicated and adequately supervised, was delivered at term by breech extraction of a living child. The past history was irrelevant: the first pregnancy was normal, and there had been no serious illnesses or surgical operations. Following the birth of the baby, the placenta did not separate immediately, and Credé's method was resorted to; the uterus became inverted. The bleeding from this inversion was tremendous, and attempts to reinvert the uterus were unsuccessful. A tourniquet was placed about the inverted portion to control hemorrhage, but in spite of this and a transfusion of 750 cc. of whole blood, the patient died from hemorrhage and shock.

Comment. Such deaths must be considered avoidable. When a uterus inverts during attempts to deliver the placenta by fundal pressure, it is natural to suppose that the manipulation is the cause of inversion; certainly, such inversion is not spontaneous. This patient was under the care of a general practitioner, who sought the assistance of a surgeon when the inversion occurred. The bleeding was tremendous, and by the time the consultant arrived the internal os had so shut down on the inverted fundus that replacement under an anesthetic could not readily be accomplished. Practically every inverted uterus can be immediately replaced with a patient under full anesthesia, and when it is so replaced, packing of the uterus to stimulate contraction and control further bleeding is indicated. Manipulation cannot effect replacement in some cases, and laparotomy is indicated. The use of a tourniquet to control hemorrhage in a case of inversion is evidence of failure.

It has been noted in these columns that chronic inversion of the uterus occasionally results from an acute inversion, and there is at least one case in which a uterus has been chronically inverted for several months and after replacement has functioned normally, with delivery of a full-term child.

All patients who bleed should, of course, be transfused, and the transfusion should be given before the patient is in extremis.

DEATHS

EATON — Charles A. Eaton, M.D., formerly of Boston, died recently. He was in his sixty-fifth year.

Born in Winchester, New Hampshire, Dr. Eaton received his degree from Boston University School of Medicine in 1908. He was a former member of the Massachusetts Medical Society and the American Medical Association.

His widow and two sisters survive him.

McGUINNESS — John F. McGuinness, M.D., of Woburn, died June 17. He was in his fiftieth year.

Born in Brighton, Dr. McGuinness received his degree from Middlesex University School of Medicine in 1923. He was a member of the Massachusetts Medical Society and the American Medical Association.

His widow and two daughters survive him.

WAR ACTIVITIES

CIVILIAN DEFENSE

New Appointments

New appointments for two members of the Executive Committee of the Medical Division, Massachusetts Committee on Public Safety, have recently been announced.

Dr. A. William Reggio, deputy medical director of the Medical Division, has been commissioned as a major in the United States Public Health Service and will devote the majority of his time to perfecting the organization of the Medical Division for the care of injured civilians in the Commonwealth.

Mr. Oliver G. Pratt, superintendent of the Salem Hospital and also a deputy medical director of the Medical Division, has been made a consultant in the United States Public Health Service and has been appointed State Hospital Officer, whose duties comprise the organization of hospitals for civilian-defense activities. These include blood banks, the establishment of emergency and base hospitals and an accounting to the Government for the cost of hospitalization of civilian casualties, a ruling having been recently made in Washington that civilians injured by bombing or sabotage or during an official blackout may receive federal assistance for hospital care at the rate of $3.75 a day.

MISCELLANY

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR MAY, 1942

Diseases	May 1942	May 1941	Five-Year Average*
Anterior poliomyelitis	2	0	0
Chicken pox	1762	1276	1187
Diphtheria	18	9	14
Dog bite	1387	1259	1274
Dysentery, bacillary	5	2	9
German measles	2440	640	234
Gonorrhea	321	319	368
Measles	5326	4118	3479
Meningitis, meningococcal	20	8	10
Meningitis, other forms	10	—	—
Mumps	2018	1479	965
Paratyphoid infections	3	23	29
Pneumonia, lobar	211	210	372
Scarlet fever	1128	823	945
Syphilis	523	437	492
Tuberculosis, pulmonary	362	303	267
Tuberculosis, other forms	23	30	25
Typhoid fever	2	9	6
Undulant fever	1	12	5
Whooping cough	971	1157	849

*Based on figures for preceding five years.

Geographical Distribution of Certain Diseases

Anterior poliomyelitis was reported from Chelsea, 1; Lowell, 1; total, 2.

Diphtheria was reported from: Boston, 1; Canton, 2; Fall River, 4; Hampden, 2; Lowell, 1; Millbury, 1; Somerville, 3; Springfield, 2; Winthrop, 1; Wrentham, 1; total, 18.

Dysentery, bacillary, was reported from: Boston, 1; Melrose, 1; Waltham, 3; total, 5.

Encephalitis, infectious, was reported from: Bridgewater, 1; Cambridge, 1; Fort Devens, 1; Quincy, 1; total, 4.

Meningitis, meningococcal, was reported from: Agawam, 1; Boston, 5; Carver, 1; Chelsea, 2; Leominster, 4; Lynn, 2; Newton, 1; Salem, 1; Townsend, 1; Uxbridge, 1; Weymouth, 1; total, 20.

Meningitis, other forms, was reported from: Boston, 1; Cambridge, 1; Chicopee, 1; Gloucester, 1; Methuen, 1; Natick, 1; Peabody, 1; Salem, 1; Somerville, 1; Springfield, 1; total, 10.

Paratyphoid infections were reported from: Melrose, 1; Quincy, 2; total, 3.

Septic sore throat was reported from: Amesbury, 1; Arlington, 1; Barre, 2; Belmont, 1; Boston, 2; Brookline, 2; Cambridge, 1; Medford, 3; Winchester, 1; Winthrop, 2; total, 16.

Tetanus was reported from: East Brookfield, 1; Natick, 1; Newton, 1; total, 3.

Trachoma was reported from: Quincy, 1; total, 1.

Trichinosis was reported from: Amherst, 1; Camp Edwards, 1; Taunton, 1; total, 3.

Typhoid fever was reported from: Fairhaven, 1; Randolph, 1; total, 2.

Undulant fever was reported from: Waltham, 1; total, 1.

Chicken pox for the second consecutive month reached figures of record-high incidence. Mumps again is at a record-high level for the ninth month of the past ten months.

Reported at figures above their five-year average incidences were anterior poliomyelitis, chicken pox, diphtheria, dog bite, German measles, measles, meningococcic meningitis, scarlet fever, syphilis, pulmonary tuberculosis and whooping cough.

Bacillary dysentery, gonorrhea, paratyphoid infections, lobar pneumonia, tuberculosis, other forms, typhoid and undulant fever were all reported at figures below their five-year averages.

One case of animal rabies was reported from Norwell, possibly the start of a new focus in this area.

NOTES

Tufts College Medical School recently announced the following promotions on the faculty: Dr. James M. Baty, professor of pediatrics; Dr. Francis C. McDonald, clinical professor of pediatrics; Dr. Richard Wagner, assistant professor of pediatrics; Dr. Bernard Appel, assistant professor of dermatology; Dr. Francis P. McCarthy, lecturer in dermatology; and Dr. Harry M. Powers, associate professor of biochemistry.

Dr. Elmer W. Barron has been made professor emeritus of pediatrics. He has been head of that department since 1929 and has taught at the medical school since 1910.

Dr. Philip D. Woodbridge, a former member of the staffs of the Lahey Clinic and Boston Consumptives and Boston City hospitals, was recently appointed professor of anesthesiology at Temple University School of Medicine, Philadelphia.

REPORTS OF MEETINGS

GREATER BOSTON MEDICAL SOCIETY

A regular meeting of the Greater Boston Medical Society was held at the Beth Israel Hospital on February 3. Dr. Harry Goldblatt spoke on "The Humoral Mechanism in Hypertension."

It is agreed that in hypertension there are increased cardiac output, blood volume and blood viscosity, but these do not appear to be initiating factors. The basic cause now appears to be an increased peripheral vascular resistance, which may be on a neurogenic or circulatory basis. Organic blood-vessel disease is rarely widespread enough to be a cause. Vasospasm — at least when restricted to the splanchnic area — does not seem to be suf-

ficient cause for hypertension, and is probably not neurogenic.

That a humoral mechanism is involved in hypertension is now fairly generally accepted, but the manner of its working is still debated. The finding of an initiating cause is now a major problem. Endocrine studies, particularly on the androgens, originally occupied a prominent role, but are now of questionable value. Surgery, performed on that basis, except in cases of tumors, is also of doubtful benefit. The hypophysis has been intensively studied and has even been irradiated for relief of hypertension. The value of such treatment has not been proved. Renal hypertension was formerly believed to occur only in the presence of recognizable kidney disease with impaired renal function. Innumerable attempts were made to prove a renal basis for hypertension before Dr. Goldblatt employed partial clamping of a renal artery. Even this method had been tried before, but not enough time was allowed to elapse before the results were evaluated. Incidentally, arterial occlusion does not result in true ischemia but causes a "hemodynamic disturbance."

In experimental hypertension in dogs, which is similar to the essential form in man, there is no impaired renal function. There is a moderate increase in heart weight, but no true cor bovinum. The changes in the vascular tree consist largely in increases in the media. There are none of the intimal changes of arteriolosclerosis, which does not naturally occur in dogs. Decreased renal function can be brought about, however, by excessive occlusion of the renal artery, and such a decrease results in profound vascular changes. Although this happens practically overnight experimentally, the resultant condition closely simulates malignant hypertension in human beings. Vascular changes may be caused only by excessive clamping of the renal artery and the other ureter, with a decrease in kidney function. At autopsy, 98 per cent of those with renal arteriolar disease have hypertension.

The lack of a neurogenic element in this form of experimental hypertension was borne out by denervation of the kidneys and removal of the celiac and splanchnic ganglia; there was no effect on the onset of hypertension when the renal artery was clamped. This does not necessarily invalidate the clinical observations on the benefits of such forms of surgery in human beings, whose kidneys present many small "clamps," and there may be a beneficial increase of blood flow. That some substance from the kidney is involved in the phenomenon is proved by removal of the kidney, by the return of the blood pressure to normal on removal of the clamp or of the kidney to which the clamped vessel leads, by the elevation of blood pressure when the kidney is transplanted and the artery clamped, by the elevation of blood pressure when a so-called "ischemic kidney" is transplanted and perfused, and by the failure of the blood pressure to rise when the renal veins are ligated.

The presence of renin in hypertensive kidneys was postulated many years ago, but Landis was the first to establish its true pressor nature by demonstrating the lack of skin-temperature changes accompanying the hypertension. Houssay showed that blood from ischemic kidneys was more vasoconstrictor than that from normal organs, whereas Freedman et al. demonstrated the need for a substrate found in normal plasma in addition to this renal material. Houssay and Page believe that renin is an enzyme or enzymelike substance that reacts with prehypertensin, which is probably a pseudoglobulin with no pressor action, to produce hypertensin (angiotonin), which may be a polypeptide. Injection of hypertensin causes vasoconstriction and hypertension.

To investigate further the relations of the endocrines, hypophysectomy was carried out, and no effect was noted on the hypertension of the Goldblatt kidney. The removal of one adrenal gland and the medullary portion of the other also failed to inhibit the pressor action, indicating lack of control by the medulla. When both adrenal glands were removed, the blood pressure remained unchanged so long as no substitute therapy was administered, but any small amount of remaining cortex allowed hypertension to occur. The prehypertensin titer falls sharply under such circumstances, but this is prevented by the use of desoxycorticosterone acetate. This indicates that the latter substance acts directly on the plasma part of the humoral mechanism. Liver poisoning with chloroform causes a marked decrease in the prehypertensin level even when desoxycorticosterone is administered to rule out its effect on the adrenal cortex.

The treatment of hypertension depends on the cause of the particular case. That associated with unilateral renal disease may be materially benefited by nephrectomy. Increase of the accessory renal circulation through the spleen or other organs has shown some promise in dogs but not, so far, in man. In such dogs, only the renal artery is involved, whereas there is intrarenal disease in human hypertension. Medical treatment, except for fleeting relief from the nitrites, is unavailing. Many attempts are being made to use various tissue extracts. Hypertensinase, or angiotonin inhibitor, obtainable from many tissues but especially the kidney, has given rise to some alleged good results in animals and man. Wakelin has attempted to desensitize against renin by gradually increasing the amounts injected. But the antipressor titer is the same at the high and low levels of blood pressure. In all these attempts with tissue therapy, the question of the purity of the extract arises, for in most cases there are large amounts of both renin and inhibiting substances. The importance of the patient's temperature cannot be too strongly stressed, for those who respond invariably had some fever. Fever therapy with typhoid injections accomplished the same ends in reducing hypertension. The possibility of a nonspecific protein reaction therefore arises.

The discussion was inaugurated by Dr. Robert W. Wilkins, who reported on the crucial experiment of administering potent angiotonin to human volunteers. There was a resultant hypertension and vasoconstriction, but certain side reactions not characteristic of essential hypertension occurred. The most significant of these was an almost constant rise of venous pressure to heart-failure levels. The second contribution concerned the return of blood pressure toward or to normal on removal of a responsible diseased kidney. Therefore, hypertension is not necessarily a response to vascular disease and is not required to drive the blood through narrowed vessels, as was formerly taught. The changes, then, are not always irreversible.

Dr. Mark Altschule emphasized the presence of an increased venous pressure in most experimentally hypertensive animals as compared with diseased human beings, and therefore questioned the similarity of causation. Dr. David Ayman stated that the present surgical treatment of hypertension does not increase the renal blood flow, as demonstrated experimentally.

Dr. Lewis Dexter, in discussing the relation of the adrenal glands to this subject, stated that adrenalectomy results in a decrease of precursor in only about 50 per cent of the dogs. Evaluation of renal extracts reveals that many of them used therapeutically contain variable amounts of, or no, renin and hypertensinase. One form of therapy is to attempt the destruction of renin or hypertensin, but so

far no effective material has been found. A renin inhibitor may exist but is still unknown. Hypertensinase is as yet not a definite entity, for there are many reactions from this impure, labile substance. Finally, a transfer in toto of the humoral mechanism of experimental animals to man is dangerous, for the causes of hypertension in man are variable and complicated.

In conclusion, Dr. Goldblatt offered impurity of the extracts as the explanation of the elevated venous pressure observed by Wilkins. He agrees with Dr. Altschule that the "high-powered" character of hypertensive patients is a result rather than a cause of the elevated blood pressure. However, there is a large percentage of hypertension in the sluggish Negroes of the Virgin Islands. So far as the amount of blood flow following surgery on the abdominal sympathetic ganglia is concerned, he believes that clearance methods are not sufficiently accurate, even in the hands of their originators. That so-called "unilateral renal disease" may actually be bilateral is possible on the basis that hypertension may be present even in the absence of decreased kidney function. At present, there is no means of determining the hypertensive state of a kidney by the common functional tests.

BOSTON ORTHOPEDIC CLUB

At a regular monthly meeting of the Boston Orthopedic Club held at the Boston Medical Library on February 16, Dr. Charles Bradford spoke on "Recent Experiences in England."

The first part of the discussion concerned the problems encountered at a base hospital, about 50 miles from London, where there are 1700 beds, of which 300 are for orthopedic use and 100 for convalescent patients. Injured persons arrive one to three days after an air raid in the city by autoambulance and come in groups of 20 to 200 at one time. On admission, they may be suffering from fatigue or may be in actual or incipient shock, but very few deaths result. However, about 30 to 45 per cent of those injured in raids die, largely from primary shock or blast, or both. Once that phase has been surmounted, the results are good, probably because of the more intelligent treatment of shock. Sixty to 75 per cent of the movable cases are orthopedic.

The primary treatment at the site of the raid is usually inadequate because of the character of the incidents and the overcrowding of the stations. Débridement, although attempted, is often hurried and incomplete, and such wounds should, therefore, be left open. This should not be considered analogous to compound wounds of civilian life, in which careful, thorough preparation allows primary closure. Chemotherapy with the sulfonamides is invariably employed, but it is difficult to evaluate the results, for there is no correlation of amount of drug, degree and quality of débridement, amount of contamination and so forth. The tendency to place too much reliance on chemotherapy at the expense of thorough mechanical cleansing is a definite hazard. At least 50 per cent of the patients reach base hospitals infected because of inadequate débridement or faulty use of chemotherapy, or both. The proper use of the sulfonamides, however, probably does lengthen from six to eight to fourteen to twenty-four hours the period in which primary closure of wounds is possible.

The choice of methods of immobilization is still being debated. For a fracture of the femur, there seems to be no question about the value of the Thomas splint. For fractures elsewhere, the plaster method of Orr is most popular. The splinting is more adequate than any other method, the soft tissues are protected, and a certain control of the spread of toxins is accomplished. Its foremost advantage, however, is the prevention of needless tampering with the wound. Among its disadvantages is the need for ceaseless observation and intelligent care to guard against the development of pressure sores and other sequelae of edema, for which no precautions are taken in application of the plaster. Little, if any, progress is being made in the treatment of shock in England as compared with that in the United States. There have been difficulties with plasma precipitation, and serum is therefore being more widely used. American plasma is apparently superior, and the organization for transportation and so forth in England is excellent.

In the treatment of the later stages of fractures, most of the older men favor the Orr method, for they appreciate the greater comfort to the patient as compared with the multiple dressings of the last war. The wounds look as well if not better, and the clinical course is usually much improved. Amputations have been performed less frequently, but chemotherapy may have had some effect on these statistics. The bacteria encountered have been largely staphylococci, anaerobic and aerobic streptococci and *Clostridium welchii*, but the incidence of gas gangrene has been only 0.5 per cent. This may also have decreased the number of amputations. The value of the Orr method in decreasing secondary contamination of wounds has been amply borne out by studies on the flora of wounds on surgical wards. In this way, it has been demonstrated that most infections are contracted in the wards rather than being latent in the wounds. With the Orr method, the opportunities for cross infections on a ward are greatly decreased.

There are the usual late complications encountered in civilian orthopedic practice, but there is definitely a higher incidence of infection. Wounds on the whole are multiple. In England, plating of fractures is in great disfavor because of numerous failures, which are attributable to inadequate asepsis and small plates and screws that pierce only one cortex. But in an attempt to rehabilitate quickly, especially in the air corps, this conservatism has given way to radicalism in the form of an extravagant use of bone grafts (Watson-Jones). It is often impossible to plate or graft a fracture, and here the Roger Anderson or some similar apparatus has a large scope. In 65 cases in which this splint was employed, there were no failures, and there was a wide applicability. There is need of much technical study, skill and constant care to prevent failures, however. One excellent feature is the opportunity for making patients ambulatory in a short time, and for transporting fractured femurs and patients with multiple fractures. When there are widespread wounded men in remote places, a trained surgeon and an assistant can obtain immobilization with this apparatus without the necessity for x-ray examinations, and the patients may then be transported to base hospitals in safety and comfort.

The problems in a bombed city itself are numerous. To relieve the hospitals of the large number of cases, it is necessary to have well-trained first-aid parties, preferably under the direction of a local physician. Such groups decide whether the slightly injured may return home or should be sent to first-aid centers, which are not in hospitals but are easily accessible and are under the jurisdiction of competent doctors and nurses. The practical application of first-aid technic as taught is often faulty, and such things as asepsis naturally are useless in the streets during a blackout. The amount of first-aid treatment at the spot has been found to impede hospital administra-

tion and is accordingly confined to the control of major hemorrhage and the splinting of obvious fractures, with especial care of suspected spinal injuries.

When one attempts to treat severely wounded persons in the midst of a "blitzed" city, the available hospitals are merely used to best advantage. They are protected physically by sandbags, fire watchers and so forth, but some damage still occurs. Casualty rooms should be on the ground or preferably a basement level. Co-ordination must be of two kinds: interhospital and intrahospital. When most of the damage occurs in one part of a city, it is imperative not to overload the physical and personnel facilities of the neighboring institutions. For this purpose of interhospital co-ordination, a center is advisable, but this is so far not being well carried out in England. In a given hospital, the number of admissions is entirely unpredictable, and the staff must respond immediately and improvise whenever necessary. Three important groups should be organized: that for admission, in which competent clinical judgment is necessary; that for the treatment of shock, which can function in any large space equipped with many beds, blankets and intravenous fluids; and surgical operating teams, which should have two or three tables in one room rather than a similar number of rooms. The proper choice and administration of anesthesia cannot be too strongly emphasized. A good supervisor can control a large group if the cases are well arranged. Nitrous oxide is probably greatly underrated, and Pentothal sodium has been found excellent, especially in shock. At Pearl Harbor, a large amount of drop ether was administered, and this method is strongly advocated as being easiest, if not safest, especially in the hands of untrained anesthetists.

In conclusion, the role of the fire and public-utilities departments as a first line of defense was emphasized.

BOOK REVIEWS

Treatment of the Patient Past Fifty. By Ernst P. Boas, M.D. 8°, cloth, 324 pp., with 19 illustrations. Chicago: The Year Book Publishers, Inc., 1941. $4.00.

Pediatrics and public-health education, by extending the average duration of life, have made geriatrics a very important department of medicine, and Dr. Boas has drawn on his wide practical experience and extensive study in this field to write a book notable for thoroughness and clarity. He defines senescence by indicating the factors that, singly or in combination, produce the condition, and the section devoted to cardiovascular diseases, which constitutes more than one third of the book, should be of great value to the general practitioner, who is usually the first to encounter the symptoms of physical or psychologic degeneration. Although fifty is taken as a dividing line, one must avoid being arbitrary in this matter, since there are persons in whom warning signals are evident earlier, and many others with healthy bodies and happy minds who are free from such symptoms until a much later period.

The author has given excellent advice on the aftercare of patients with coronary-artery involvement, as well as a pertinent explanation of the relation between these diseases and diabetes mellitus, with a wise warning against the use of insulin in such cases.

Of equal significance is the chapter on diseases of the lungs, which stresses the effect of such conditions on the heart and circulation. It is surprising, however, that more attention has not been directed to some of the blood diseases occurring in the middle years.

Since medical or surgical treatment has less chance of permanent success in the elderly, serenity and comfort become prime objectives; and when, as sometimes happens, old age is more a state of mind than of physical degeneration, the maintenance of morale is supremely advantageous; however, in the reviewer's opinion, Dr. Boas might well have indicated more fully the technic required in these situations.

The book offers nothing that is new to specialists in the various fields, and is primarily a general textbook on medicine, with emphasis on diseases occurring during senescence.

Infant Nutrition: A textbook of infant feeding for students and practitioners of medicine. By William McK. Marriott, M.D. Revised by P. C. Jeans, M.D. Third edition. 8°, cloth, 475 pp., with 31 illustrations. St. Louis: The C. V. Mosby Company, 1941. $5.50.

Dr. Marriott's book first came out eleven or twelve years ago with the avowed purpose of putting the matter of infant nutrition on a relatively simple, yet rational and scientific, basis. It did that, or helped to do it. Not all pediatricians used Marriott's methods, for there are various ways of feeding babies, — as doubtless there always will be, — any of which may be successful so long as there is adherence to certain underlying principles. Those principles were emphasized, and still are, for Dr. Jeans has not altered the general structure of the volume, but has merely brought in factors that keep the subject thoroughly up to date.

To the specialist in pediatrics, all this ought to be familiar ground of course, but to the general practitioner or to the student in medical school, it will be a most useful text. The viewpoint is neither reactionary nor radical, but charged with strong common sense. It is a pleasure to recommend the book.

Health Resorts of the U. S. S. R.: A symposium of articles. Compiled from data of the Central Institute of Balneology in Moscow. Editor: Dr. I. A. Pertsov. 8°, cloth, 270 pp., with 45 illustrations. Moscow, Russia: The U. S. S. R. Society of Cultural Relations with Foreign Countries (V. O. K. S.).

This is a comprehensive work on the health resorts of Russia, which abounds in innumerable mineral springs and deposits of medicinal muds. At present, more than 2500 places in the Soviet Union possess natural curative agencies covering all known types of salubrious mineral waters. The vast territory of the nation has diverse climates: humid, subtropical, arid, subarid and mountainous. The Stalin Five-Year Plan included the reconstruction of existing health resorts and the building of new retreats for the benefit of the people.

The Premature Infant: Its medical and nursing care. By Julius H. Hess, M.D., and Evelyn C. Lundeen, R.N. 8°, cloth, 309 pp., with 74 illustrations. Philadelphia: J. B. Lippincott Company, 1941. $3.50.

This is by far the most complete and satisfactory treatise on the premature infant that has ever come to the attention of the reviewer, and every physician and every nurse charged with the care of such infants would do well to have the volume at hand. It is specific down to the very minutiae of procedure, and scarcely a question that may arise in this field is not anticipated. A mere glance at the well-chosen illustrations often shows exactly how this or that should be done.

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